```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-484-964-1
1465
1 cgggaaggatttgtaaaccc.....gataaatgggcatgccagcc 1465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            August 15, 2001, 15:14:14; Search time 1962.38 Seconds (without alignments) 11547.332 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1344157 segs, 7733874588 residues
                                                                                                                                                         23:
24:
25:
26:
27:
27:
29:
30:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenEmbl: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gb_ov:*
gb_pat1:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gb_ba1:*
gb_ba2:*
                                                                                                          em_htgo_hum:*
em_htgo_inv:*
em_htgo_rod:*
em_htg.hum1:*
em_htg.hum2:*
em_htg.hum4:*
em_htg.hum5:*
em_htg.hum6:*
em_htg.hum6:*
em_htg.hum6:*
em_htg.hum6:*
em_htg.hum6:*
em_htg.hum6:*
em_htg.hum7:*
em_htg.hum6:*
em_htg.hum6:*
em_htg.hum6:*
em_htg.hum6:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gb_in3:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gb_ba3:*
                                                                                                                                                                                                                                                                                                                                                                                    gb_pat2: *
gb_ph: *
gb_pl1: *
gb_pl2: *
gb_pl3: *
gb_pl4: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gb_om:*
                                                                                                                                                                                                                                                                                                                                                         em_ba1:*
em_ba2:*
                                                                   em_hum3:*
em_hum4:*
                                       em_hum5:*
em_hum6:*
em_om:*
               em_in:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2688314
```

	98:				ω		:			· ::	1 0		••									::									••				• • •	••	••	••	••	 	л U Э ⊢	50:			47:	46.	Д 4 Л 4 	:
he sumbor of rocal	<pre>gp_priv:* em_ba3:*</pre>	in4:*	or.	ro	珔.	ď.	27	יס	gb_pr4:*	π	סיכ	þr	Pt.	皮	hţg	htq	nta2	2 4 4	5	ntg1	ıtg	ıtg1	ţ,	7	ולם ני	<del>,</del>	1599	tg8	ıtg	1tg6	ιtg	ξį	Ę,	7	+ +	. <sub>F</sub> .	5	4		†	em_un:*	_sy	ľ	0:*	누	em ph:*	em_ov:*	)
te predict																																																

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

c e 7	o 6	C LT	4	w	N	_	Result No.
1069.2	1069.2	1079	1120.2	1120.2	1286.6	1286.6	score
73.0 68.3	73.0	73.7	76.5	76.5	87.8	87.8	% Query Match
167440	155913	160939	1227	1223	1514	1514	% Query Match Length DB
97	81	76	91	97	97	9	
AL359981 HSU38784	AL513282	AC079354	BC006462	HSU61397	HSU83117	AR087051	ID
U38784 Human ubiqu	ALSISZBZ HOMO Sapi	ACU79354 Homo sapi	BC006462 HOMO Sapi	U6139/ Human ubiqu	U8311/ Human sentr	AR087051 Sequence	Description

Query Match Query Match Query Match Best Local Similarity 94.1%; Pred. No. 9.1e-239; Matches 1384; Conservative 0; Mismatches 74; Indels 13; Gaps 4;  Qy 2 gggaaggatttgtaaaccccggagcgaggttcttgcttacccgaggccgctgctgtgcgga 61	Unknown.  Unknown.  Unclassified  1 (bases 1  Baker, B.F. a  Antisense mo Patent: US 5  Loc  1  462 a	. ALIGNMENTS  RESULT 1 AR087051 LOCUS AR087051 1514 bp DNA DEFINITION Sequence 1 from patent US 5985664. ACCESSION AR087051.1 GI:10013817	9 813 55.5 163196 85 AC005220 AC005220 Homo sapi 1 765.8 52.3 1187 94 AF033353 AF03332 AF03332 AF03332 AF033332 AF033333 AF03333 AF033333 AF03333334 AF033333 AF0333333 AF033333 AF033333 AF033333 AF033333 AF033333 AF033333 AF0333333 AF033333 AF033333 AF033333 AF033333 AF033333 AF033333 AF0333333 AF033333 AF03333 AF033333 AF033333 AF033333 AF033333 AF033333 AF033333 AF03333 AF033333 AF03333 AF03333 AF03333
QY       10         Db       10         QY       10         Db       11         QY       11         Db       11         Db       11	Db Db Db Db Db Db Db Db	ОУ	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1015 gcaattaataagctatacatgcagaaatgaatacaacagaacactgctctttttagatt 1074	825 CTTTCCAATTGGCCCTGACAGAACTGAACTGTGGAAAATGACCTTTCTTAACTTGA 884 836 agctacttttaaaa-tttgagggtctggaccaaaagaagggaatatcaggttgaagtca 894	662 ttttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttcca 721	122 acttgggggataagaagcaaggtgaatatataaactcaaagtcatagacgaaactgaagc 169 122 acttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagca 181 110 acttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagca 181 110 acttgggggataagaagcaaggtgaaattgaattgaactcaaagtcattggacaggatagca 229 182 gtgagattcacttcaaagtgaaatagaactcaaacacatctcaaagaactcaaagaactcatact 241 11111111111111111111111111111111111

```
δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HSU83117
                                                                                                                                               BASE CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
 밁
                            Qy
                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                 Matches 1384;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1484
                                                                                                                                                            COUNT
                                                                                                                                                                                                                                                                                                                                                         source
 50
                                 N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     caatcatgttggataaatgggcatgccagcc 1465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAAAGAAAAAATGCCTAAAATAAGGTTTTCTTGCATAAATACTGGAAATTGCACATGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAATCATGTTGGATAAATGGGCATGCCAGCC 1514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACAAATTTTTTCTTCATTACTGTACAGGGATGATGTTAATGACTTTGGAGCACTGAAAGT
GGGAAGGATTTGTAAACCCCGGAGCGAGGTTCTGCTTACCCGAGGCCGCTGCTGTGCGGA 109
                  gggaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgga 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Okura, T., Gong, L., Kamit
Chang, H.-M. and Yeh, E.T.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases i to 1514)
Okura, T., Gong, L., Kamitani, T., Wada, T.,
Chang, H.-M. and Yeh, E.T. H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human
                                                                                                                                                                                                                                                                                                                                                                                                      submitted (23-DEC-1996) Division of Molecular Medicine, Department of Internal Medicine, and Cardiovascular Research Center, Institute of Molecular Medicine for the Prevention of Human Diseases, The University of Texas-Houston Health Science Center, 2121 W. Holcombe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Protection Against Fas/APO-1- and Tumor Necrosis Factor-Mediated Cell Death by a Novel Protein, Sentrin J. Immunol. 157(10), 4277-4281 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HSU83117
                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     bases 1 to 1514
                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sentrin mRNA,
                                                                                                                                                                                                                                                                                                                                                                                       Suite 900, Houston, TX 77030, USA
                                                                                                                                                               þ
                                                                                                                                                              /protein_id="AAB39999.1"
/db_xref="G1:1769602"
/translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
/translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
KKLKESYCQRQVPMNSLRFLEEGQRIADNHTPKELGMEEEDVLEVYQEQTGGHSTV"
a 256 c 314 g 482 t
                                                                                                                                                                                                                                                                                                      /tissue_type="placenta"
                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                           /note="ubiquitin-like protein"
                                                                                                                                                                                                                                                                                                                            /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                           /product="sentrin"
                                                                                                                                                                                                                                                            /codon_start=J
                                                                                                                                                                                                                                                                                                                                                            .1514
                                                                                  87.8%;
94.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              đđ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kamitani, T., Wada, T., Okura, I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complete
                                                                 0;
                                                                                  Score 1286.6; DB 97; Pred. No. 9.1e-239;
                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Okura, I.,
                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   09-JAN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Wei, C.-F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Wei, C.-F.,
                                                                                                     1514;
                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1363
```

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                           QΥ
                                                                                                                                                                                                                                                   γQ
                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                              γ
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                     γ
                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                          Qy
                                                                                                                                                 밁
                                                                                                                                                                 Qy
                                                                                                                                                                                         망
                                                                                                                                                                                                                                 В
 Š
                                       ρ
                                                               밁
                                                                                  Ş
                                                                                                        밁
  1135
                                          1075
                                                               1065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           110
                                                                                    1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122
                                                                                                         1005
                                                                                                                                                                                                                                                                                                                                                                                                                                              530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  290
                                                                                                                                                                                                                                   825
                                                                                                                                                                                                                                                                            765
                                                                                                                                                                                                                                                                                                                     710
                                                                                                                                                                                                                                                                                                                                         662
                                                                                                                                                                                                                                                                                                                                                             650
                                                                                                                                                                                                                                                                                                                                                                                  602
                                                                                                                                                                                                                                                                                                                                                                                                                         542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62
                                                                                                                             955
                                                                                                                                                  945
                                                                                                                                                                                                                                                       782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gaccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGTCAGAGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gtcaaagacagggtgttccaaatgaattcactcaggtttctcttttgagggtcagagaaattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ctgataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatc
                                                                                                                                                                                                                                                                           TGGGAGATGGAAGTTTTTTGTGGTGATAAATAAGATCGACCAATGCAAGTGTTCATAATGA 824
                                                                                                                                                                                                                                                                                                                                    tttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttcca
                                                                                                                                                                                                                                                                                                                                                             ATTATTGTTTGTTTCATTGTGCTGATTTTTGGTGATCAAGCCTCAGTCCCCTTCATATT
                                                                                                                                                                                                                                                                                                                                                                                                               attattgtttgttttcattgtgctgatttttggtgatcaagcctcagtccccttcatatt
                                                                                                                                                                                                                                                                                                                                                                                                                                              AAAACTGGCACCCCATCTCTTTGAAACATCTGGTAATTTGAATTCTAGTGCTCATTATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                         aaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcattattc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCAATCCTTTTTTATTTTTAAAAATAGTTCTTTTGTAATGTGGTGTTCAAAACGGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 toaatcottttttatttttaaaaatagttottttgtaatgtggtgttcaaaacggaattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGATAATCATACTCCAAAAGAACTGGGGAATGGAGGAAGAAGATGTGATTGAAGTTTATC
                      CTTTCCAATTGGCCCCTGACAGAGAACTGAACTGTGGAAAAATGACCTTTCCTTAACTTGA
                                                                                                                                                                                                                                           atggaagtttt-----tcagagaactgaactgtggaaaaatgacctttccttaacttga 835
                                                                                                                                                                                                                                                                                        attggccctgatgttcagcatgtgattacttcactcctggactgtgactttcagtgggag
                                                                                                                                                                                                                                                                                                                    TTTTCAGGCTTTGTTCTAGCA-----TGTGATTACTTCACTCCTGGACTGTGACTTTCAG
                                                              agctacttttaaaa-tttgagggtctggaccaaaagaagagggaatatcaggttgaagtca
attaaaataaacaatatttgtcaaaaatcgtactaatgcttattttattttaattgtata 1194
                                                                         gcaattaataaagctatacatgcagaaatgaatacaacagaacactgctctttttagatt 1074
                                                                                                                                                 AGATGACAGATAAGGTGAGAGTAATGACTAACTCCAAAGATGGCTTCACTGAAGAAAAGG
                                                                                                                                                           agatgacagataaggtgagagtaatgactaactccaaagatggcttcactgaagaaaagg
                                                                                                                                                                                           AGCTACTTTTAAAATTTTGAGGGTCTGGACCAAAAGAAGAGGAATATCAGGTTGAAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                              1064
                                                                                                                                 1014
                                                                                                                                                     1004
                                                                                                                                                                                                                                        884
                                                                                                                                                                                                                                                                                                   781
                                                                                                                                                                                                                                                                                                                        764
                                                                                                                                                                                                                                                                                                                                             721
                                                                                                                                                                                                                                                                                                                                                                 709
                                                                                                                                                                                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                                                                                                                                                                                         649
                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                    589
                            1183
                                                                                                                                                                          954
                                                                                                                                                                                               944
                                                                                                                                                                                                                   894
```

Japan Japan

```
Š
                                                 Db
                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
TITLE
                                                                                                                                                                               ORIGIN
                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
HSU61397
                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                        Matches 1155;
                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1184
                      62
                                                 60
                                                                             N
                                         gacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TACTGAAGTGCCTTCTGAATCAAGGATTTAATTAAGGCCACAATACCTTTTTAATACTCA 1423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGTTCTGTTTTTTAAAAAACTTGATATTCCCCGTATGGTGCATATTTGATACAGGTACC 1483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9t9ttct9tttttttaaaaacttgatattcccgtatggtgcatatttgatacaggtacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tactgaagtgccttctgaatcaaggatttaattaaggccacaatacctttttaatactca 1374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACAAATTTTTTCTTCATTACTGTACAGGGATGATGTTAATGACTTTGGAGCACTGAAAGT 1363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 acaaattttttcttcattactgtacagggatgatgttaatgactttggagcactgaaagt 1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAAAGAAAAAATGCCTAAAATAAGGTTTTCTTGCATAAATACTGGAAATTGCACATGGT 1303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 (bases 1 to 1223)
Boddy, M.N., Howe, K., Etkin, L.D., Solomon, E. and Freemont, P.S.
BIC 1, a novel ubiquitin-like protein which interacts with the component of a multiprotein complex that is disrupted in acute promyelocytic leukaemia
                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                        Submitted (20-JUN-1996) Somatic Cell Genetics, Research Fund, 44 Lincoln's Inn Fields, London
                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Oncogene 13 (5), 971-982 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo
                                                                                                                                                                                                                                                                                                                                                                                                                   Howe, K., Boddy, M.N., Etkin, D.E., Solomon, E. and Freemont, P.S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   U61397.1 GI:1518693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          human
                                                                                                                                                                                           371
                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 1223)
                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          397 1223 bp mRNA PRI ubiquitin-homology domain protein PIC1 mRNA,
                                                                                                                                                                                           ø
                                                                                                                                                                   /product="ubiquitin-homology domain protein PIC1"
/protein_id="AAB40388.1"
                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                          /tissue_type="placenta"
146. .451
                                                                                                                                                                                                                                                                                                                    /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                            codon_start=1
                                                                                                                  76.5%;
                                                                                                  Score 1120.2; DB 9/
Pred. No. 1.2e-206;
Pred. No. 1.3e-306;
                                                                                                                             DB 97; Length 1223;
                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                      Imperial Cancer WC2A 3PX, UK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14-JAN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complete cds
                                                                                                   ω
--
                                                                                                   Gaps
                121
                                                                                                  ω
```

```
QУ
                                                                                                    DЬ
                                                                                                                            Qy
                                                                                                                                                           В
                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                         Вþ
                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                Ъ
                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                               ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          dd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Dβ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dβ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                               1199
                                                                                                                                                                                                                  1020
                                                                                                                                                                                                                                              960
                                                                                                                                                                                                                                                                         960
                                                                                                                                                                                                                                                                                                                                                           840
                                                                                                                                                                                                                                                                                                                                                                                       840
                                                                                                                                                                                                                                                                                                                                                                                                                  780
                                                                                                                                                                                                                                                                                                                                                                                                                                              780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         542 attattgttttgttttcattgtgctgatttttggtgatcaagcctcagtccccttcatatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120 GACCCCCGGGTGAAGCCACCGTCATCATGTCTGACCAGGAGGCAAAACCTTCAACTGAGG
                                                                       aataaacaatatttgtcaaaa 1160
                                                                                              TGTACTTTTTGGCCTGGGATATGGGTTTTAAATGGACATTGTCTGTACCAGCTTCATTAA 1198
                                                                                                               tgtactttttggcctgggatatgggttttaaatggacattgtctgtaccagcttcattaa 1139
                                            AATAAACAATATTTGTAAAAA 1219
                                                                                                                                                                      taataaagctatacatgcagaaatgaatacaacagaacactgctcttttttagattttatt 1079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TAATAAAGCTATACATGCAGAAATGAATACAACAGAACACTGCTCTTTTJGATTTATT
                                                                                                                                                                                                               TAAGATTTTTTAAAAATCTTGTCAGAAGATCCCAGAAAAGTTCTAATTTTCATTAGCAAT
                                                                                                                                                                                                                             taagattttttaaaaaatcttgtcagaagatcccagaaaagttctaattttcattagcaat 1019
                                                                                                                                                                                                                                                                                     acagataaggtgagagtaatgactaactccaaagatggcttcactgaagaaaaggcattt
                                                                                                                                                                                                                                                                                                                                         acttttaaaatttgagggtctggaccaaaagaagaggaatatcaggttgaagtcaagatg
                                                                                                                                                                                                                                                                                                                                                                                 attggccctgatgttc^agcatgtgattacttcactcctdggactgtgactttcagtggg
                                                                                                                                                                                                                                                                     ACAGATAAGGTGAGAGTAATGACTAACTCCAAAGATGGCTTCACTGAAGAAAAGGCATTT
                                                                                                                                                                                                                                                                                                                             ACTITITAAAATTTGAGGGTCTGGACCAAAAGAAGAGGGAATATCAGGTTGAAGTCAAGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTTCAGGCTTGTGGTGATAAATAAGATCGACCAATGCAAGTGTTCATAATGACTTTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ttttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTGGCCCTGATGTTCffAGCATGTGATTACTTCACTCCTGGGACTGTGACTTTCAGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcattattc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTATTGTTTGTTTTCATTGTGCTGATTTTTGGTGATCAAGCCTCAGTCCCCTTCATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGAAGATGTGATTTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ctgataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9tgagattcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcatact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACTTGGGGATAAGAAGGAGGTGAATATAAACTCAAAGTCATTGGACAGGATAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          acttgggggataagaagdaaggtgaatatattaaactcaaagtcattggacaggatagca
Way Man + 7c ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAAACTGGCACCCCATCTCTTTGAAACATCTGGTAATTTGAATTCTAGTGCTCATTATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGTCAGAGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTGAGATTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
           200 mudation
                                                                                                                                                       1138
                                                                                                                                                                                                                                                                                                 959
                                                                                                                                                                                                              1079
                                                                                                                                                                                                                                                                     1019
                                                                                                                                                                                                                                                                                                                             959
                                                                                                                                                                                                                                                                                                                                                        899
                                                                                                                                                                                                                                                                                                                                                                                   899
                                                                                                                                                                                                                                                                                                                                                                                                             839
                                                                                                                                                                                                                                                                                                                                                                                                                                         839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            239
```

```
RESULT
BC006462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
  δÃ
                                                     밁
                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COCUS
                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
       62
                                                     46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4
                                                                                                  Ν
gacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg 121
                                                  1155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 1227)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Steven Jones, Jennifer Asano, Ian Bosdet, Yaron Butterfield, Susanna Chan, Readman Chiu, Chris Fjell, Erin Garland, Ran Guin, Letticia Hsiao, Martin Krzywinski, Reta Kutsche, Oliver Lee, Soo Sen Lee, Victor Ling, Carrie Mathewson, Candice McLeavy, Steven Ness, Pawan Pandoh, Anna-Liisa Prabhu, Parvaneh Saeedi, Jacqueline Schein, Duane Smailus, Michael Smith, Lorraine Spence, Jeff Stott, Michael Thorne, Miranada Tsai, Natasja van den Bosch, Jill Vardy, George Yang, Scott Zuyderduyn, Marco Marra.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (09-APR-2001) National Institutes of Health, Mammalian Gene Collection (MGC), Cancer Genomics Office, National Cancer Institute, 31 Center Drive, Room 11A03, Bethesda, MD 20892-2590,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens, ubiquitin-like 1 (sentrin), clone MGC:2095, mRNA, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Robert Stratel: (301) 496-1550
Email: Robert_Straus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BC006462.1 GI:13623670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BC006462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cDNA Library Preparation: Rubin Laboratory
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Genome Sequence Centre,
BC Cancer Agency, Vancouver, BC, Canada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tissue Procurement: ATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NIH-MGC Project URL: http://mgc.nci.nih.gov
Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Strausberg, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Clone distribution: MGC clone distribution information can be for
through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
Series: IRAL Plate: 8 Row: f Column: 12.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       info@bcgsc.bc.ca
                                                                                                                                                                         Similarity
                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Robert_Strausberg@nih.gov
                                                                                                                                                                                                                                                                                           /product="ubiquitin-like 1 (sentrin)"
/protein_id="AAH06462.1"
/db_xref="G:13633671"
/translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
/translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQESSEIHFKVKMTTHL
KKLKESYCQRQOVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
1 208 C 259 g 374 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Vector: pOTB7"
132. .437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /tissue_type="Placenta, choriocarcinoma"
/clone_lib="NIH_MGC_21"
/lab_host="DH10B-R"_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:9606"
/clone="MGC:2095 IMAGE:3546125"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Homo sapiens"
/db_xref="LocusID:7341"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                      codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1227 bp
                                                                                                                                                                         76.5%;
99.5%;

 Mismatches

                                                                                                                                                                           Pred. No. 1.2e-206;
                                                                                                                                                                                                  Score 1120.2;
                                                                                                                                                                                                  DB 91; Length 1227;
                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      information can be found
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13-APR-2001
                                                                                                                                                       ω
--
                                                                                                                                                          Gaps
                                                                                                                                                          ω
```

```
Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                          Qγ
                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                   В
                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                Ωy
                                                                                                                                                                                                                                                                                                                                      В
QY
                                         QY
                                                                 В
                                                                                     Qy
                                                                                                              Дb
                                                                                                                                Qy
                                                                                                                                                        밁
                                                                                                                                                                            Qy
                      Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   122 acttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagca 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               586
                                                                                                                                                                                                                                                                                                                                                                                                                                                     541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  302
                                                                                                                                                         946
                                                                                                                                                                                                                                                                                                                                      646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gtgagattcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcatact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TACCCTCTCCTTTTTAAAAATTACGTGTGCACAGAGAGGTCACCTTTTTCAGGACATTGC
                                                                                                                                                                                                                                                                                                                                                                                                                               CATTATTGTTTGTTTTCATTGTGCTGATTTTTGGTGATCAAGCCTCAGTCCCCTTCATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                         cattattgttttgttttcattgtgctgattttttggtgatcaagcctcagtccccttcatat 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGAAGATGTGATTGAAGTTTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGAGATTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                         TAATAAAGCTATACATGCAGAAATGAATACAACAGAACACTGCTCTTTTT-GATTTTATT 1124
                                                                                                                                                        ACAGATAAGGTGAGAGTAATGACTAACTCCAAAGATGGCTTCACTGAAGAAAAGGCATTT 1005
                                                                                                                                                                                                                acttttaaaatttgagggtctggaccaaaagaagaggaatatcaggttgaagtcaagatg
                                                                                                                                                                                                                                                             agatggaagtttttcagagaaactgaactgtggaaaaatgacctttccttaacttgaagct
                                                                                                                                                                                                                                                                                                                                                                                               taccctctcctttttaaaaattacgtgtgcacagagaggtcacctttttcaggacattgc
 aataaacaatatttgtcaaaa
                      TGTACTTTTTGGCCTGGGATATGGGTTTTAAATGGACATTGTCTGTACCAGCTTCATTAA 1184
                                  tgtactttttggcctgggatatgggttttaaatggacattgtctgtaccagcttcattaa 1139
                                                                            taataaagctatacatgcagaaatgaatacaacagaacactgctctttttagattttatt 1079
                                                                                                               TAAGATTTTTTAAAAATCTTGTCAGAAGATCCCAGAAAAGTTCTAATTTTCATTAGCAAT 1065
                                                                                                                        taagattttttaaaaatcttgtcagaagatcccagaaaagttctaattttcattagcaat 1019
                                                                                                                                                                   acagataaggtgagagtaatgactaactccaaagatggcttcactgaagaaaaggcattt 959
                                                                                                                                                                                                     ACTTTTAAAATTTGAGGGTCTGGACCAAAAGAAGAGGAATATCAGGTTGAAGTCAAGATG
                                                                                                                                                                                                                                                 AGATGGAAGTTTTTCAGAGAACTGAACTGTGGAAAAATGACCTTTCCTTAACTTGAAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         285
                                                                                                                                                                                                                                                                                                                                            765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      465
                                                                                                                                                                                                                                                                          839
                                                                                                                                                                                                                                                                                                825
                                                                                                                                                                                                                                                                                                                                                                                         705
                                                                                                                                                                                                                                                                                                                                                                                                              660
                                                                                                                                                                                                          945
                                                                                                                                                                                                                                                      885
                                                                                                                                                                                                                                                                                                                                                                    720
```

밁

1185 AATAAACAATATTTGTAAAAA 1205

```
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 5
AC079354/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Insert size: 169000; agarose-fp
Insert size: 159939; sum-of-contigs
Quality coverage: 5.28 in Q20 bases; agarose-fp
Quality coverage: 5.62 in Q20 bases; sum-of-contigs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chemistry: Dye-primer ET; 100% of reads chemistry: Dye-terminator Big Dye; 0% of reads Assembly program: Phrap; version 0.990319 Consensus quality: 155115 bases at least Q40 Consensus quality: 156942 bases at least Q30 Consensus quality: 157858 bases at least Q20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequencing vector: M13; 100%
Sequencing vector: plasmid; 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Center project name: H_NH1145F21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Center: Washington University Genome Sequencing Center Center code: WUGSC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (28-AUG-2000) Genome Sequencing Center, Washington University School of Medicine, 4444 Forest Park Parkway, St. Louis, MO 63108, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Web site:http://genome.wustl.edu/gsc/index.shtml
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Waterston, R.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The sequence of Homo sapiens clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Waterston, R.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HTG; HTGS_PHASE1; HTGS_DRAFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens chromosome UNK clone RP11-1145F21, WORKING DRAFT SEQUENCE, 11 unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AC079354
                                                                                                                                                                                                                                                                                                                                                                                          NOTE: This is a 'working draft' sequence. It currently consists of 11 contigs. The true order of the pieces is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AC079354.1 GI:9931967
                                                                                                                                                                                                                                                                                                                                                            be preserved
                                                                                                                                                                                                                                                                                                                                                                                  as soon
                                                               105340
105440
143859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (bases 1 to 160939)
                                                                                                                    83608
                                                                                                                                                                            50279
50379
65744
                                                                                                                                                                                                                                 35610
35710
                                                                                                                                                                                                                                                                     10519
10619
21837
21937
                                                                                                                                                          65844
                                                                                                                                                                                                                                                                                                                                                                            as it is available and the accession number will
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            160939 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --- Summary Statistics -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          to 160939)
                                                                                                   105439:
                                                                                                                                                                                          50378:
65743:
                                                                                                                                                                                                                                                                                                                                      10518: contig of 10518 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Project Information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -- Genome Center ----
                                     gap of
contig
gap of
contig
                                                                                                                                                    gap of contig
                                                                                                              gap of unknown length contig of 21732 bp in
                                                                                                                                                                                        gap of unknown length contig of 14569 bp in gap of unknown length contig of 15365 bp in
                                                                                                                                                                                                                                                               gap of unknown length
contig of 11218 bp in length
gap of unknown length
contig of 13673 bp in length
   unknown
of 4555
                                                                       unknown length of 38419 bp in length
                                                                                                                                                                    of 15365 bp in unknown length
                                     of 3042
                                                                                                                                                      of 17664 bp in
                                                         unknown
                                     length
bp in l
bp in length
                   length
                                     length
                                                                                                            length
                                                                                                                                                  length
                                                                                                                                                                                      length
                                                                                                                                                                                                                         length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-SEP-2000
                                                                                                         ŲΥ
                                                                                                                                                                                  VΩ
                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                        Db 138961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches 1129;
                                                                                                                                                                                                                                                                                                                                    501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 46179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           151756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  105440
```

COMMENT

JOURNAL TITLE

AUTHORS

REFERENCE

TITLE AUTHORS KEYWORDS VERSION

ACCESSION

```
Db 138721 AAATAAGATCGACCAATGCAAGTGTTCATAATGACTTTCCAATTGGCCCCTGATGTTCTAG 138662
                                                                                                                                                           Db 138781 TTACGTGTGCACAGAGAGGTCACCTTTTTCAGGACATTGCATTTTCAGGCTTGTGGTGAT 138722
                                                                                                                                                                                                                                         Db 138901 TTTGAAACATCTGGTAATTTGAATTCTAGTGCTCATTATTCATTATTGTTTTGTTTTCATT 138842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Db 139081 ACAGCTGGGAATGGAGGAAGAAGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCA 139022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  681 aaataagatcgaccaatgcaagtgttcataatgactttccaattggccctgatgttc-ag
                                                                                                                                                                                  621 ttacgtgtgcacagagaggtcacctttttcaggacattgcattttcaggcttgtggtgat 680
                                                                                                                                                                                                                                                                                                                                                                                                                         441 aaaaatagttcttttgtaatgtggtgttcaaaacggaattgaaaactggcaccccatctc 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     321 agaactgggaatggaggaagaagatgtgattgaagtttatcaggaacaaacggggggtca 380
                                                                                                                                                                                                                                                                                                                                              tttgaaacatctggtaatttgaattctagtgctcattattcattattgttttcatt 560
                                                                                                                                                                                                                                                                                                                                                                                                      AAAAATAGTTCTTTTGTAATGTGGTGTTCAAAACGGAATTGAAAACTGGCACCCCATCTC 138902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           151656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="assembly_name:Contig8"
151756. 160939
/note="assembly_name:Contig9"
. 35217 c 34748 g 43792 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       83608. .105339 // note="assembly_name:Contig16 clone_end:SP6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="assembly_name:Contig14" 65844. .83507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="assembly_name:Contig7"
147101. .151655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="assembly_name:Contig17"
143959. .147000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="assembly_name:Contig13"
50379. .65743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    vector_side:right"
35710. .50278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                vector_side:right"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              clone_end:T7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="assembly_name:Contig10"
10619. .21836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="assembly_name:Contig12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="assembly_name:Contigl1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="assembly_name:Contig15"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone="RP11-1145F21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /chromosome="UNK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .10518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   73.7%;
98.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                151755: gap of unknown length 160939: contig of 9184 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .143858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .35609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1079; DB 76;
Pred. No. 1.2e-198;
0; Mismatches 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1003 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 160939;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4; Gaps
                                                                                                                                                                                                                                             138782
```

맑 δÃ 멍

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Db 138361 AAATGAATACAACAGAACACTGCTCTTTTT-GATTTTATTTGTACTTTTTGGCCTGGGAT 138303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Db 138004 ATATTCCTGTATGGTGCATATATGATACAGTTACCTAATCATGTTGAATAAATGGGCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Db 137944 CCA 137942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                              RESULT 6
AL513282/c
                                                                        COMMENT
                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                SDOOT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              138541 TGGACCAAAAGAAGAAGAATATCAGGTTGAAGTCAAGATGACAGATAAGGTGAGAGTAAT 138482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          138601 ACTGAACTGTGGAAAAATGACCTTTCCTTAACTTGAAGCTACTTTTAAAATTTGAGGGTC 138542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          138302 ATGGGTTTTAAATGGACATTGTCTGTACCAGCTTCATTAAAATAAACAATATTTGT-AAA 138244
                                                                                                                                JOURNAL
                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 138063 ATTTAATTAAGGCCACAATACCTTTTTAATACTCAGTGTTCTG-TTTTTTTAAAAACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1040 aaatgaatacaacagaacactgctctttttagattttatttgtacttttttggcctgggat 1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1460 cca 1462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1400 atattcccgtatggtgcatatttgatacaggtacccaatcatgttggataaatgggcatg 1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    860 tggaccaaaagaagaggaatatcaggttgaagtcaagatgacagataaggtgagagtaat 919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          actgaactgtggaaaaatgacctttccttaacttgaagctacttttaaaatttgagggtc 859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 agggatgatgttaatgactttggagcactgaaagttactgaagtgccttctgaatcaagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 atgggttttaaatggacattgtctgtaccagcttcattaaaataaacaatatttgtcaaa 1159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGTGATGATGTTAATGACTTTGAAGCACTGAAAGTTACTGAAGTGCCTTCTGAATCAAGG
                                                                      requests: clonerequest@sanger.ac.uk on Feb 28, 2001 this sequence version replaced gi:13161719.
                                                                                                                                                                                                                                                                                                                                    Homo sapiens chromosome 1 clone RP11-179G5, PROGRESS ***, 8 unordered pieces.
                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                AL513282
Web site: http://www.sanger.ac.uk
                                Center: Sanger Centre
                                                                                                                              Submitted (25-FEB-2001) Sanger Centre, Hinxton, Cambridgeshire,
                                                                                                                                                      Direct Submission
                                                                                                                                                                    Pavitt, R.
                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                      AL513282.5 GI:13162044
                                                                                                                                                                                      (bases 1 to 155913)
                                                                                                                                                                                                                                                                                    HTGS_PHASE1; HTGS_DRAFT
                                                                                                                                                                                                                                                                                                                                                                                155913 bp
                                                                                                          UK. E-mail enquiries: humquery@sanger.ac.uk Clone
                    S
                                                        Genome Center
                                                                                                                                                                                                                                                                                                                                                                                DNA
                                                                                                                                                                                                                                                                                                                                                                                HTG
                                                                                                                                                                                                                                                                                                                                                              *** SEQUENCING
                                                                                                                                                                                                                                                                                                                                                                                    26-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               138064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       138005
```

Š

δÃ

Ş

Ş

γ 밁 Ş

```
FEATURES
                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                misc_teature
                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                    misc_teature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Assembly program: XGAP4; version 4.5
Sequencing vector: plasmid; L08752; 100% of reads
Chemistry: Dye-terminator Big Dye; 100% of reads
Consensus quality: 153015 bases at least Q40
Consensus quality: 153938 bases at least Q30
Consensus quality: 154555 bases at least Q20
Consensus quality: 154555 bases at least Q20
Insert size: 155213; sum-of-contigs
Insert size: 154818; 1.0% error; agarose-fp
Quality coverage: 6.89x in Q20 bases; sum-of-contigs Quality
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Center project name: bA179G5
----- Summary Statistics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: humquery@sanger.ac.uk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         coverage: 7.27x in Q20 bases; agarose-ip
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NOTE: This is a 'working draft' sequence. It currently consists of 8 contigs. The true order of the pieces is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20839 20938; gap of 100 bp 20939 50589; contig of 29651 bp in length 50590 50689; gap of 100 bp 50690 81538 st. contig of 30849 bp in length 81539 81638; gap of 100 bp 10
                                        43830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      108106 108205: gap of 100 bp in length 108206 149395: contig of 41190 bp in length 149396 149495: gap of 100 bp in length 153075 contig of 3580 bp in length 153076 153175: gap of 100 bp 153176 155913: contig of 2738 bp in length.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   preserved
                                            ฌ
                                                                                                                                                                                                                                                                                                                                                                                                                /note="assembly_fragment:00942
fragment_chain:3"
108206. 149395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       clone_end:T7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                               /note="assembly_fragment:03083
fragment_chain:4"
, 34529 c 35326 g 41527 t
                                                                                                                                                                /note="assembly_fragment:02486
fragment_chain:4"
153176. .155913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  81639. .89682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               50690.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="assembly_fragment:01236
fragment_chain:1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20939. .50589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             vector_side:left"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone="RP11-179G5"
                                                                                                                                                                                                                                                                                                 149496. .153075
                                                                                                                                                                                                                                                                                                                           /note="assembly_fragment:02750
fragment_chain:3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="assembly_fragment:03283
fragment_chain:2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="assembly_fragment:00478
fragment_chain:2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               fragment_chain:1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="assembly_fragment:02743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone_lib="RPCI-11.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         149395: cc 49494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .15591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20838: contig of 20838 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . BLDSE
                                                     701 others
```

```
Db 135482 TAAGATTTTTTAAAAATCTTGTCAGAAGATCCCAGAAAAGTTCTAATTTTCATTAGCAAT
                                                 Ş
                                                                                             밁
                                                                                                                                  Š
                                                                                                                                                                             밁
                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Db 135841 ACCCTCTCCTTTTTAAAAATTACGTGTGCACAGAGAGCCCACCTTTTTCAGGACATTGCA 135782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Db 135961 AAAACTGGCACCCCATCTCTTTGAAACATCTGGTAATCTGAATTCTAGTGCTCATTATTC 135902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Db 136261 GTGAGATTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT 136202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Db 136321 ACTTGGGGGATAAGAAGGAAGGTGAATATATTAAACTCAAAGTCATTGGACAGGATAGCA 136262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Db 136381 GACCCCCGGGTGAAGCCACTGTCATCATGTCTGACCAGGAGGCAAAACCTTCAACTGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Db 136441 GAGAAGGATTTGTAAACCCCGGAGTGAGGTTCTGCTTACCCGAGGCCGCTGCTGTGCGGA 136382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                135661 GATGGAAGTGTTTCAGAGAACTGAAACTGTGGAAAAATGACCTTTCCTTAACTTCAAGCT 135602
                                                                                                                                                                                                                                                                                                                                   135721 ATTGGCCCTGATGTTCTAGCATGTGATTACTTCACTCCTGGACTGTGACTTTCAGTGGGA 135662
                                                                                                                                                                                                                                                                                                                                                                                                                 135781 TTTTCAGGCTTGTGGTGATAAATAAGATTGACCAATGCAAGCGTTCATAATAACTTGCGA 135722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  135901 ATTATTGTTTATTTTCATTGTGCTGATTTTTGGTGATCAAGCCTCAGTCCCCTTCATATT 135842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                136021 TCAATCCTTTCTCATTTTTAAAAATAGTTCTTTTGTAATGTGGTGTTAAAAAACGGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              196201 GTCAAAGACAGGGGTTCCAATGAATTCATTCAGGTTTCTCTTTGAGGGTCAGAGAATTG 136142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches 1130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                    840
                     960 taagattttttaaaaatcttgtcagaagatcccagaaaagttcttaattttcattagcaat 1019
                                                                                                                                                                                                                                                                                                       781
                                                                                                                                                                                                                                                                                                                                                                                                                                         662 ttttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttcca 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       602 accetetetttttaaaaattacytytycacayagagyteacetttttteagyacattyca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       542 attattgttttgttttcattgtgctgatttttggtgatcaagcctcagtccccttcatatt 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   182 gtgagattcacttcaaagtgaaaatgacaacactctcaagaaactcaaagaatcatact 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     122 acttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagca 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62 gacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 999ma99mattgtmamaccccggagcgaggttctgcttmcccgagggccgctgctgtgcgga 61
                                                                                                        acagataaggtgagagtaatgactaactccaaagatggcttcactgaaggaaaagggcattt 959
                                                                                                                                                                                      acttttaaaatttgagggtctggaccaaaagaaggaggaatatcaggttgaagtcaagatg 899
                                                                                                                                                                                                                                                                           9atggaagtttttcagagaactg-aactgtggaaaaatgacctttccttaacttgaagct 839
                                                                                                                                                                                                                                                                                                                                                         attggccctgatgttc-agcatgtgattacttcactcctggactgtgactttcagtggga 780
                                                                                ACTGATAAGGAGAGAGTAATGACTAACTCCAAAGATGGCTTCATTGAAGAAAAGGCATTT 135483
                                                                                                                                                                ACTCTT-AAATTTGAGGGTCTGGACCAAAAGAAGAGGAATATCGGGTTGAAGTCAAGATA 135543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        aaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcattattc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tcaatccttttttatttttaaaaatagttcttttgtaatgtggtgttcaaaacgggaattg 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGAAGATGTGATTGAAGTTTATC 136082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gtcaaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73.0%;
97.2%;

 Mismatches

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1069.2; DB 81; Length 155913; Pred. No. 9.6e-197;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  135962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                136322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4;
```

```
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 7
AL359981/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Db 135363 TGTACTTTTTGGCCTGGGATATGGGTTTTAAATGGACATTGTCTGTACCAGCTTCATTAA 135304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Db 135303 AATAAACAATATTTGTAAAAAA 135282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              135422 TAATAAAGCTATACATGCAGAAATGAATACAACAGAACACTGCTCTTTTT-GATTTTATT 135364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1140 aataaacaatatttgtcaaaaa 1161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1080 tgtactttttggcctgggatatgggttttaaatggacattgtctgtaccagcttcattaa 1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1020 taataaagctatacatgcagaaatgaatacaacagaacactgctctttttagattttatt 1079
34911 125180: contry of 100 bp 125181 125280: gap of 100 bp 125281 129032: contry of 3752 bp in length 129033 129132: gap of 100 bp 129033 129132: gap of 100 bp 132609: gap of 100 bp 132600 132699: gap of 100 bp 132700 141603: contry of 8904 bp in length 132700 141603: contry of 8904 bp in length 100 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Insert size: 166840; sum-of-contigs
Insert size: 138972; 3.5% error; agarose-fp
Quality coverage: 6.32x in Q20 bases; sum-of-contigs Quality
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          coverage: 8.08x in Q20 bases; agarose-fp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dye-terminator Big Dye; 83% of reads
Consensus quality: 165078 bases at least Q40
Consensus quality: 166122 bases at least Q30
Consensus quality: 166518 bases at least Q20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Assembly program: XGAP4; version 4.5
Sequencing vector: plasmid; L08752; 100% of reads
Chemistry: Dye-terminator ET-amersham; 16% of rea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (20-JAN-2001) Sanger Centre, Hinxton, Cambridgeshire, CB10 15A, UK. E-mail enquiries: humquery@sanger.ac.uk Clone requests: clonerequest&sanger.ac.uk
On Jan 22, 2001 this sequence version replaced gi:10186747.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Center project name: bAll5N23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Web site: http://www.sanger.ac.uk
Contact: humquery@sanger.ac.uk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Center code:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Center: Sanger Centre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 167440)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pavitt,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HTG; HTGS_PHASE1; HTGS_DRAFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens chromosome 1 clone F
PROGRESS ***, 7 unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                    NOTE: This is a 'working draft' sequence. It currently consists of 7 contigs. The true order of the pieces is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AL359981.10 GI:12331082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AL359981
                                                                                                                                                                                                                                                                                                                                                        as soon as it is available and the accession number will be preserved.
                                                                                                                                                                                                   17991: contig of 17991 bp in length
17992 18091: gap of 100 bp
18092 34810: contig of 16719 bp in length
34811 34910: gap of 100 bp
34911 125180: contig of 90270 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ·---- Project Information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      167440 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -- Summary Statistics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genome Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      l clone RP11-115N23,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *** SEQUENCING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            reads Chemistry:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         z
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                          Б
                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                                                                                                                                                          ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
             Ş
                                          엉
                                                                  Š
                                                                                                밁
                                                                                                                        Q
                                                                                                                                                     DЬ
                                                                                                                                                                                δÃ
                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 1130; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                         154453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               154513
                                                                                                                                                                                                                                                                                                                                                                                   154393
                                          154033 AAAACTGGCACCCCATCTCTTTGAAACATCTGGTAATCTGAATTCTAGTGCTCATTATTC
                                                                                                154093 TCAATCCTTTCTCATTTTTAAAAATAGTTCTTTTGTAATGTGGTGTTAAAAAACGGAATTG
                                                                                                                                                                                                                                                                     154273 GTCAAAGACAGGGCGTTCCAATGAATTCATTCAGGTTTCTCTTTGAGGGTCAGAGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                            422
                                                                                                                                                                                                                                                                                                                                                                                                               122
                                                                                                                                                                                                                                                                                                                                                       182
542 attattgtttgttttcattgtgctgatttttggtgatcaagcctcagtccccttcatatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N
                                                                                                                                                                                                                            GTGAGATTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                                                                        gtgagattcacttcaaagtgaaaatgacaacatctcaagaaactcaaagaaatcatact 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gggaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgga 61
                                                       aaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcattattc
                                                                                                                                                                                                              CTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGAAGATGTGATTGAAGTTTATC
                                                                                                                                                                                                                                                                                  gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg 301
                                                                                                               tcaatccttttttatttttaaaaatagttcttttgtaatgtggtgttcaaaacggaattg
                                                                                                                                                        /note="assembly_fragment:00528" 141704. .167440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="assembly_fragment:00856
fragment_chain:1"
132700. .141603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18092.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="assembly_fragment:01240
fragment_chain:1"
129133. .132599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         34911.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:9606"
/chromosome="1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="assembly_fragment:02701"
37675 c 35802 g 45906 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="assembly_fragment:03000
fragment_chain:1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="assembly_fragment:02116
fragment_chain:1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="assembly_fragment:00134
fragment_chain:1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone_lib="RPCI-11.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="RP11-115N23"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .167440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     167440: contig of 25737 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 73.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .34810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .125180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1069.2; DB 8 Pred. No. 9.6e-197; 0; Mismatches 28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 80;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         600 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 167440;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                         541
                   601
                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                            154394
                                                                                                                                                           154094
                                                                                                                                                                                                                 154154
                                                                                                                                                                                                                                            361
                                                                                                   154034
                                                                                                                                                                                                                                                                        154214
```

4;

```
δã
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Db 153973 ATTATTGTTTATTTTCATTGTGCTGATTTTTGGTGATCAAGCCTCAGTCCCCTTCATATT 153914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
HSU38784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ОÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCUS
                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
                                                                                                                                                                      AUTHORS
TITLE
                                                                                                                                                                                                                                  MEDLINE
                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    153673 ACTCTT-AAATTTGAGGGTCTGGACCAAAAGAAGAAGAATATCGGGTTGAAGTCAAGATA 153615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    153853 TTTTCAGGCTTGTGGTGATAAATAAGATTGACCAATGCAAGCGTTCATAATAACTTGCGA
                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              153435 TGTACTTTTTGGCCTGGGATATGGGTTTTAAATGGACATTGTCTGTACCAGCTTCATTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          153494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  153733 GATGGAAGTGTTTCAGAGAACTGAAACTGTGGAAAAATGACCTTTCCTTAACTTCAAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  153375 AATAAACAATATTTGTAAAAAA 153354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        662 ttttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttcca 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              attggccctgatgttc-agcatgtgattacttcactcctggactgtgactttcagtggga 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                acceteteetttttaaaaattaegtgtgcacagagaggtcacetttttcaggacattgca 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTGGCCCTGATGTTCTAGCATGTGATTACTTCACTCCTGGACTGTGACTTTCAGTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          acttttaaaatttgagggtctggaccaaaagaagaggaatatcaggttgaagtcaagatg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      aataaacaatatttgtcaaaaa 1161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tgtactttttggcctgggatatgggttttaaatggacattgtctgtaccagcttcattaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TAATAAAGCTATACATGCAGAAATGAATACAACAGAACACTGCTCTTTTT-GATTTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            taataaagctatacatgcagaaatgaatacaacagaacactgctcttttttagattttatt 1079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  taagattttttaaaaatcttgtcagaagatcccagaaaagttctaattttcattagcaat 1019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTGATAAGGAGAGAATGACTAACTCCAAAGATGGCTTCATTGAAGAAAAGGCATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                acagataaggtgagagtaatgactaactccaaagatggcttcactgaagaaaaggcattt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gatggaagtttttcagagaactg-aactgtggaaaaatgacctttccttaacttgaagct 839
                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 1017)
                                                                                                                                Submitted (16-OCT-1995) Zhiyuan Shen, Life Sciences Division, Alamos National Lab, MS_M888, Los Alamos, NM 87545, USA
                                                                                                                                                                                                                                                  RAD51/RAD52 proteins
Genomics 36 (2), 271-279
                                                                                                                                                                                                                                                                                                                                Shen, Z., Pardington-Purtymun, P.E., Comeaux, J.C., Moyzis, R.K.
                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  U38784.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HSU38784 1017 bp
Human ubiquitin-like
                                                                                                                                                                            Direct Submission
                                                                                                                                                                                                                                96411684
                                                                                                                                                                                                            (bases 1 to 1017)
                                                                                                                                                                                                                                                                                          a human ubiquitin-like protein
/note="This cDNA was cloned with the yeast two hybrid system. The protein interacts with human RAD51 and RAI proteins in yeast"
                                                        /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                  1. .1017
                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                GI:1574947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mRNA
protein mRNA,
                                                                                                                                                                                                                                                      (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complete cds
                                                                                                                                                                                                                                                                                            associating with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    153555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        153674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        153495
                          RAD52
```

01-JUL-1998

```
Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNT
                           781
                                                                                                  721
                                                                                                                                                                    661
                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                              622
                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                562
                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ۳
                                    ctgaactgtggaaaaatgacctttccttaacttgaagctacttttaaaatttgagggtct 860
                                                                                                             atgtgattacttcactcctggactgtgactttcagtgggagatggaagtttttcagagaa
                                                                                                                                                           ttgaaacatctggttaattttgaattctagtgctcattattcattattgttttgttttcattg
                    CTGAACTGTGGAAAAATGACCTTTCCTTAACTTGAAGCTACTTTTAAAATTTGAGGGTCT
                                                                                        ATGTGATTACTTCACTCCTGGACTGTGACTTTCAGTGGGAGATGGAAGTTTTTCAGAGAA
                                                                                                                                                                                                                                 TACGTGTGCACAGAGGTCACCTTTTTCAGGACATTGCATTTTCAGGCTTGTGGTGATA 660
                                                                                                                                                                                                                                                                                                                                                                          TTGAAACATCTGGTAATTTGAATTCTAGTGCTCATTATTCATTATTGTTTTGTTTTCATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aaaatagttcttttgtaatgtggtgttcaaaaccggaattgaaaactggcaccccatctct 501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAACTGGGAATGGAGGAAGAAGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCAT
                                                                                                                                                                                                                                                             tacgtgtgcacagagaggtcacctttttcaggacattgcattttcaggcttgtgggtgata 681
                                                                                                                                                                                                                                                                                                                                                                                                                                              AAAATAGTTCTTTTGTAATGTGGTGTTCAAAACGGAATTGAAAACTGGCACCCCATCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gaactgggaatggaggaagatgtgattgaagtttatcaggaacaaacggggggtcat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              atgaattcactcaggtttctcttttgagggtcagagaattgctgataatcatactccaaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAAATGACAACATCTCAAGAAACTCAAAGAATCATACTGTCAAAGACAGGGTGTTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aaaatgacaacacatctcaagaaactcaaagaatcatactgtcaaagacagggtgttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ggagcgaggttctgcttacccgaggccgctgctgtgcggagacccccgggtgaagccacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGAATTCACTCAGGTTTCTCTTTGAGGGTCAGAGAATTGCTGATAATCATACTCCAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGAGCGAGGTTCTGCTTACCCGAGGCCTCTGCTGTGCGGAGACCCCCGGGTGAAGCCACC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1013;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /POOLITION ACC50733.1"
/PROTEIN_Id="AAC50733.1"
/PROTEIN_Id="AAC50733.1"
/db_xref="GI:1574948"
/translation="MSDQEAR9STEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
/translation="MSDQEAR9STEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
/KKLKESYCQRGVPMNSLRFLFBGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
A 180 c 213 g 314 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note-"similar to ubiquitin and to yeast Smt3p (suppressor of MIF2); Method: conceptual translation supplied by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 author"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 68.3%;
99.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 1000.2; DB 9
Pred. No. 1.8e-183;
0; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 97; Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1017;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                    840
                                                                                                                           800
                                                                                                                                                                                                                                                                                                       600
                                                                                                                                                                                                                                                                                                                                                                                                             561
                                                                                                                                                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
AC005220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
repeat_region
                                                                  repeat_region
                                                                                                     repeat_region
                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                            repeat_region
                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tcagaagatcccagaaaagttctaattttcattagcaattaataaagctatacatgc 1037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ggaccaaaagaagaggaatatcaggttgaagtcaagatgacagataaggtgagagtaatg 920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACTAACTCCAAAGATGGCTTCACTGAAGAAAAGGCATTTTAAGATTTTTAAAAATCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   actaactccaaagatggcttcactgaagaaaaggcattttaagattttttaaaaatcttg 980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGACCAAAAGAAGAAGAATATCAGGTTGAAGTCAAGATGACAGATAAGGTGAGAGTAATG 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Berkeley, CA 94720, U.S.A. Sequence submitted by: DOE Joint Genome Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3 (bases 1 to 163196)
Gray, "W., Collins, C., Kimmerly, W., Bondoc, M., Cheng, J.,
Connolly, K.S., Gunning, K.M., Davis, C.A., Kadner, K., Miguel, T.,
Pitluck, S., Pollard, M., Rojeski, H., Subramanian, S. and Martin, C.H.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gray,J.W., Collins,C., Kimmerly,W., Bondoc,M., Cheng,J., Connolly,K.S., Gunning,K.M., Kadner,K., Miquel,T., Miller,C., Pilluck,S., Pollard,M., Rojeski,H., Subramanian,S. and Martin,C.H. Sequencing of human chromosome 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Institute, Lawrence Berkeley National Laboratory, MS 74-157, Berkeley, CA 94720, U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (01-JUL-1998) Human Genome Center, DOE Joint Genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Comparison Analysis (SCAN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ricke, D.O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Large Scale Sequence Analysis and Comparison Analysis (SCAN) System
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mammalia; Eutheria; Pri
1 (bases 1 to 163196)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AC005220
AC005220.1 GI:3282159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AC005220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 163196)
                                                                                                                                                                                                           /rpt_family="L1"
7175. 7314
                               /rpt_f
13431.
                                                                                                   complement(8695...92
/rpt_family="MLT2B2"
10121...10350
                                                                  /rpt_family="Alu"
11057. .11357
                                                                                                                                                     /rpt_family="Tigger1"
                                                                                                                                                                            /rpt_family="L1"
7322. .7441
                                                                                                                                                                                                                                                                                                                   /note="LBNL H80"
4588. .4709
                                                                                                                                                                                                                                                             /rpt_family="Tigger1"
                                                                                                                                                                                                                                                                                                                                                      /chromosome="20"
                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                  rpt_family="MIR"
                                                                                                                                                                                                                                                                                                                                                                        /clone="BAC 99"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         163196
_family="Alu"
1. ..15962
                                                _family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          chromosome
                                                                                                                                                                                                                                                                                   .6813
                                 .13702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA
20,
                                                                                                                                        9257)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BAC clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Annotation with the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99 (LBNL H80), complete
```

Š

Ş 밁

밁 Q В

Ър δÃ

Ωy В δÃ Вp Qγ 뫄 Qy B Qy В δÃ В ρ 밁 δÃ 밁 QΥ 뭐 δÃ

```
misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                  misc_feature
                                                                                                                                                      repeat_region
                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                            repeat_region
                prim_transcript
                                                                                     repeat_region
                                                                                                                     repeat_region
                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /rpt_family="MIR"
16029. .16484
/note="99% identity B54864 BAC end sequence"
complement(16891. .17025)
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="GRAIL 2 excellent exon, frame 1" complement(23247. .23567) /rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(22025. .22314)
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement(18500. .18756)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(17221. .17682)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(26920. .27577)
/rpt_family="LTR8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(25538. .25679)
/rpt_family="MIR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(22903. .23020)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(18909. .19161)
/rpt_family="MIR"
complement(61007. .61096)
/note="GRAIL 2 excellent exon, frame 1"
join(61724. .61846.71254. .71319,75055. .75261)
/standard_name="af74a01"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(24441. .24514)
                                                                                                                                                                                                                                                                                                            /note="GRAIL 2 excellent exon, frame
complement(41855. .42137)
/rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30266. .30455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (28412.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="GRAIL 2 excellent exon, frame 2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note="GRAIL 2 excellent exon, frame"
                                                                                                     complement(55490. .55796)
/rpt_family="Alu"
                                                                                                                                                      /rpt_family="THE1" complement(54343.
                                                                                                                                                                                                                                         complement(50487. .50600)
/rpt_family="L1"
                                                                                                                                                                                                                                                                                                                                                                                                                                    33836.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         32270. .32290
/note="(T)21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="GRAIL 2 excellent exon, frame 0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                   33836. .33863
/note="(GT)14"
                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="GRAIL 2 excellent exon, frame 0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="GRAIL 2 excellent exon, frame
33268. 33474
                                                                                                                                                                                                                                                                            /note="GRAIL 2 excellent exon, frame 1"
                                                                                                                                                                                                                                                                                                                                                                                                 /rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       e="GRAIL 2 excellent exon,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    family="L1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              _family="MER20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                family="L1"
                                                                                                                       __family="LTR12"
lement/ssac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             _family="THE1"
                                                                                                                                                                                                          _family="L1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .32860
                                                                                                                                                                                                                            .50855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .30888
                                                                                                                                                                                                                                                                                                 .43465
                                                                                                                                                                                                                                                                                                                                                                  .35265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .28563)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          frame
```

```
prim_transcript join(75199. 75323,84601. 84746)

prim_transcript join(75199. 75323,84601. 84746)

prim_transcript join(75199. 75323,84601. 84746)

prepat_region /note="968 identity dbsST:AA079436"

repeat_region complement(77059. 77202)

repeat_region /rpt_family="MER59".77551)

repeat_region /rpt_family="Alu"

prim_transcript join(78655. 79043,88203. 88578)

prim_transcript join(78655. 79043,88203. 88578)

prim_transcript 79526. 79590

prim_transcript 79526. 79590
Best Local Similarity Matches 1032; Conserv
                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                          /note="98% identity dbEST:AA554549" prim_transcript complement(85065. .85162)
                                                                                                                                                                                                                                                                                                                                                                            prim_transcript complement(84402.
                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                       repeat_region
                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(65258.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="100% identity dbEST:AA644590" complement(62247. .62746)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(81547. .81627)
/rpt_family="MIR"
82700. .82865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(70542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /rpt_family="Alu" 69537. .69618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     68256. .68282
/note="(T)27"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(72260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /rpt_family="L1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rpt_family="Alu"
                                                                                                                                       /standard_name="zu90c12"
/note="99% identity dbEST:AA626177"
complement(89695. .89866)
                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement (83468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /rpt_family="MIR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /rpt_family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rpt_type=tandem
                                                                       /rpt_family="MER5"
92028. .92411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rpt_type=tandem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="(CT)20"
                                                                                                             89959.
                                                                                                                                                                                                                                                                                                                                                            complement(84402..84774)
/standard_name="nl14b12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="81% identity_dbEST:AA259187"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /standard_name="nc17d10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rpt_unit=CT
                                                                                                                                                                                                                                                                                                               /standard_name="yw21h10"
                                                                                                                                                                                                                                                                                                                                                                                                                              rpt_family="MIR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /rpt_family="L1"
                                                                                                                       /note="GRAIL 2 excellent exon, frame 1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     _unit=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _family="MLT1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  _family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       _family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   _family="MER5"
     55.5%; Score 813; DB 85;
88.0%; Pred. No. 2.8e-147;
tive 0; Mismatches 105;
                                                                                                                                                                                                                                                                                                                                                                                                   _family="Alu"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .69495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .75320
                                                                                                                                                                                                                                                                                                                                                                                                                                                       .83594)
                                          Length 163196;
              Indels
              36;
```

12;

```
밁
                                                     Qy
                                                                                               Дb
                                                                                                                                 δÃ
                                                                                                                                                                           Ъ
                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                              γ
                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                    Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Db 153766 CATTITCAG------ATGATAAGATTGACCAATGCAAGTATTCATAATGACTTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΨ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Db 153408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Db 153228 CATTTGGGGGATAAGATAAAAGATGAAGATATTAAACTCAGGGTTATTGGACAGGATAGC 153287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Db 153168 AGACCTGCAGGTGAATGCCCCATCACCATGTCTGACCTGGAGGCAAAACCTTCAACTGAG 153227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DЬ
154114 ATT----ATCAATAAAGGTATACATGCAGAAATGAATACAACAGAATACTGCTCTT---- 154165
                                                                                154054 CATTTGAAGATTTTTTTTTTTTTTAATCTTGTCAGAAGATCCCCAGAAAAGTTCTGATTTTC 154113
                                                                                                                                                                                                                                                                                                                         153875 GAGATGGAAGTTTTTTAGAGAACTGAGCTGTGGAAAAATGACCTCCCTTAACAACTTGA 153934
                                                                                                                                                            153994 GGTGACAGATAAGGTTGAGAGTAACGACTAACTCCAAAGATGGCTTCCCTGAAGAAAAGA 154053
                                                                                                                                                                                                                                                                                                                                                                                                      153815 CAGTTGGCCCTGATTTTCAACCATGTGATTGTTTCACTCCTGGACTATGACTTTTGGTGG 153874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               153646 CATTATTGTTTTCATTATGCTGATTTCTGGTGATCAAGGCCTCAGGCCTCTTCATAT 153705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             153586 GAAAACAGGCACTCCATCTTTTAAAACATCTGGTAATTTGAATTCTAGTGTTCATTATT 153645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 153348 TGTCAGAGACAGGGCGTTCCAGTGAATTCCCTCAGGTTTCTCTTTGAAGGTCAGAGAATT 153407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             153108
                       1011 attagcaattaataaagctatacatgcagaaatgaatacaacagaacactgctcttttta 1070
                                                                                                                                                                                                                                                                                                                                                                                                                             720 caattggccctgatgttc-agcatgtgattacttcactcctggactgtgactttcagtgg 778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121 gacttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagc 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241 tgtcaaagacagggtgttccaatgaattcactcaggttttctcttttgagggtcagagaatt 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N
                                                                                                                                                                                    gatgacagataagg-tgagagtaatgactaactccaaagatggcttcactgaagaaaagg 954
                                                                                                                                                                                                                                           AGCTATTTTTAAGATTTGAGGGTCTGGACCAAAAGAAAAGGAGCATCAGGTT-AAGTCAA 153993
                                                                                                                                                                                                                                                                  agctacttttaaaatttgagggtctggaccaaaagaagaggaatatcaggttgaagtcaa 895
                                                                                                     gagatggaagtttttcagagaactgaactgtggaaaaatgacctttcctt---aacttga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cattttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttc 719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGCCCTCTCTTTATAAAAATTATGTGTGCACAGAGAGGCCACCTTTTTCAGGACTGTA 153765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  taccctctctttt-taaaaattacgtgtgcacagagaggtcacctttttcaggacattg 659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cattattgttttgttttcattgtgctgatttttggtgatcaagccttcagtcccctttcatat 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gaaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcattatt 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTCAATCCTTTTTTAATTTTTTTAAATAGTTCTTTTGTAGCATGGTATTTAAAACGGAATT 153585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ctcaatccttttttatttttaaaaatagttcttttgtaatgtggtgttcaaaacggaatt 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gctgataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttat 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTGATAATCATACTCCAGAAGAACTGGGGAATGGAGGAAGAAGATGTGATTGAGGTTTAT 153467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        agacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGATGGCATTGTAAACGCCAGAGCGAGGTTCTGCCTACCCCGAGACTGCTGCTGTTCGG 153167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  999aaggatttgtaaaccccggagcgaggttctgctta-cccgaggccgctgctgttgcgg
```

```
Вр
                                                 Qγ
                                                                                         Ър
                                                                                                                          Qy
                                                                                                                                                                     Вb
                                                                                                                                                                                                        QУ
                                                                                                                                                                                                                                                DЬ
                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
MEDLINE
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HSU67122
                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
121
                                                                                                     128 gggataagaagcaaggtgaatatatattaaactcaaagtcattggacaggatagcagtgaga 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                     61
                                                                                                                                                                                                           83
                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                           CGGGTGAAGCCACCGTCATCATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTGG
                                                                                                                                                                                  cgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgaggacttgg 127
                                                                                                                                                                                                                                          GATTTGTAAACCCCGGAGCGAGGTTCTGCTTACCCGAGGCCGCTGCTGTGCGGAGACCCC
                                                                                                                                                                                                                                                            gatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgttgcggagacccc 67
                                                                                GGGATAAGAAGGAAGGTGAATATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA
                                                                                                                                                                                                                                                                                                                          807;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTTCATTAAAATAAACAATATTTGTAAAAATT 154256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gcttcattaaaataaacaatatttgtcaaaaat 1162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mahajan,R.K., Guan,T., Delphin,C., Gerace,L. and Melchior,F. Direct Submission
Submitted (16-AUG-1996) Department of Cell Biology, The Scripps
                                                                                                                                                                                                                                                                                                                                           52.68;
Similarity 98.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 (bases 1 to 816)
Mahajan,R., Delphin,C., Guan,T., Gerace,L. and Melchior,F.
A small ubiquitin-related polypeptide involved in targeting RanGAP1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97148692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              to nuclear pore complex protein RanBP2 Cell 88 (1), 97-107 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     U67122.1 GI:1762972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Research Institute, 10666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          U67122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human ubiquitin-related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HSU67122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 816)
                                                                                                                                                                                                                                                                                                                                                                                                                                              235
                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                /protein_id="AAC50996.1"
/db_xref="G1:1762973"
/db_xref="G1:1762973"
/translation="MSDQBARPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
/translation="MSDQBARPSTEDLGDHTPKELGMEEEDVIEVYQEQTGGHSTV"

KKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV"

a 153 c 173 g 255 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="conjugated post-translationally to RanGAP1; ubiquitin-related profetein; similar to UBL1 encoded by GenBank Accession Number U38784, PIC1 encoded by GenBank Accession Number U61397 and GMP1 encoded by GenBank Accession Number U72722"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="SUMO-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             clone="IMAGE Consortium Clone ID: 49768, 51818, 199507"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             816 bp
                                                                                                                                                                                                                                                                                                                                       Score 770; DB 97;
Pred. No. 4.8e-139;
                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein SUMO-1 mRNA, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N. Torrey Pines Road, La Jolla, CA 92037,
                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15-FEB-1997
                                                                                                                                                                                                                                                                                                                      4.
                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                180
                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                    ω,
```

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              БР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                MEDLINE
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                     SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                AF033353
                                                                              FEATURES
                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                       /ERSION
                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                     Locus
                                                                                                                                                                                    TITLE
                                                                                                     JOURNAL
                                                                                                                                                             JOURNAL
                                                                                                                                                                                                          AUTHORS
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661
                                                                                                                                                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                                                                                                                                                  786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             atcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatcaggaac
                                                                                                                                                                                                                                                                                                                                                                                          ATCATACTCCAAAAGAACTGGGAATGGAGGAAGAAGATGTGATTGAAGTTTATCAGGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcctttttaaaaattacgtgtgcacagagaggtcacctttttcaggacattgcattttca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTTTTTTATTTTTAAAAATAGTTCTTTTGTAATGTGGTGTTCAAAACGGAATTGAAAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCTTGTGGTGATAAATAAGATCGACCAATGCAAGTGTTCATAATGACTTTCCAATTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttccaattggc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCTTTTTAAAAATTACGTGTGCACAGAGAGGTCACCTTTTTCAGGACATTGCATTTTCA
                                                                                                                                                                                                                                                                                                             Mus musculus ubiquitin-homology domain protein (Ubl1) mRNA, complete {\tt cds}.
                                                                  Direct Submission
Submitted (07-NOV-1997) Medical & Molecular Genetics,
Submitted (107-NOV-1997) Medical & Molecular Genetics,
Hospital, 8th floor, Guy's Tower, London SE19RT, UK
Location/Qualifiers
1. .1187
                                                                                                                                                            The ubiquitin-homology gene PIC1: characterization of mouse (Pic1) and human (UBL1) genes and pseudogenes Genomics 47 (1), 92-100 (1998)
                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus 1 (bases 1 to 1187)
                                                                                                                                                                                                                                                     Mus musculus
                                                                                                                                                                                                                                                                                                                                     AF033353
                                                                                                                                                                                                          Howe, K., Williamson, J., Boddy, N., Sheer, D.,
                                                                                                                                                                                                                                                                                        AF033353.1 GI:2645736
                                                                                                                            Howe, K.,
                                                                                                                                                                                               Solomon, E.
                                                                                                                                                                                                                                                                 house mouse
                                                                                                                                                   98126440
                                                                                                                                      (bases 1 to 1187)
                                                                                                                            Freemont, P.S. and Solomon, E.
          /map="C2-3"
                     /chromosome="1"
                                   /db_xref="taxon:10090"
                                               /strain-"ICR"
                                                          /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                    1187 bp
                                                                                                                                                                                                                                                                                                                                      mRNA
                                                                                                                                                                                                                                                                                                                                      ROD
                                                                                                                                                                                                           Freemont, P. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       607
                                                                                                                                                                                                                                                                                                                                                                                                                                            780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              727
       밁
```

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                             ρ
                                                                                                                                      밁
                                                                                                                                                            Ş
                                                                                                                                                                                   밁
                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                               δÃ
                    Q
                                              Вþ
                                                                Qy
                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             153
                                                                                                                                                                                                                                                                                                                                                                        333
                                                                                                                                                                                                                                                                                                                                                                                                                                          242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   122
                                                                                                                                                                                     564
                                                                                                                                                                                                          536
                                                                                                                                                                                                                                 513
                                                                                                                                                                                                                                                      476
                                                                                                                                                                                                                                                                              453
                                                                                                                                                                                                                                                                                                  417
                                                                                                                                                                                                                                                                                                                         393
                                                                                                                                                                                                                                                                                                                                                362
                                                                                                                                                                                                                                                                                                                                                                                                                   273
                                                                                                                653
  803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gggaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgga 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                               acttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagca 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACCCCCGGGTGAATCCA-CGTCACCATGTCTGACCAGGAGGCCAAAACCTTCAACTGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg
                                                                                                                                                                                                                                                                           GTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGAAGGTCAGAGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                              gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACTTAGGCGATAAGAAGGAAGGAATACATTAAACTCAAAGTTATTGGACAGGATAGCA
gaattgaaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctca
                                                                                                                                                                                                                                                                                                                         CTGATAATCATACTCCGAAAGAACTGGGAATGGAGGAAGAAGATGTGATTGAAGTTTATC
                                                                                                                                                                                                                                                                                                                                                                                  ctgataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatc
                                                           gactttccaattggccctgatgttcagcatgtgattacttcactcctggactgtgacttt
                                                                                                                                      AATACTGCCCTTTTTCCTTTAAGAGATTTCATGTGTGCACAGAGAGGCCCACCCTTTTCAG
                                                                                                                                                  catattaccctctcctttttaa---aaattacgtgtgcacagagaggtcacctttttcag
                                                                                                                                                                                               ttattcattattgtttttcattgtgctgatttttggtgatcaagcctcagtcccctt 595
                                                                                                                                                                                    ATATTCATTATTGGTTGTTTTTGTTGTGCTGATTTTTGGTGATCAGACCTCAGCTCCCTT
                                                                                                                                                                                                                                 AAATTGAATACTGGCACTCCATCTCTTAGAA-----CATATGAATTCTAGTGTTCA
                                              ACCTTTCAATTGGCTCTGAAGTTCCAGCATGTGGTTGCTTCACTCCTGGACTGTGATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="Ubll"
/note="Picl"
119. .424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/product="ubiquitin-homology domain protein"
/protein_id="AaC39959.1"
/protein_id="AaC39959.1"
/db_xref="G1:2645737"
/translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KKLKEŠYCQRQGVPMNSĪRFLFBGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV<sup>#</sup>
1 216 c 267 g 354 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="Ubl1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                52.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 765.8; DF Pred. No. 3.2e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 1187;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               152
                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  212
                                                                                                                                                                                                                                                            535
                                                                                                                                                                                                                                                                                                                              452
                                                                                                                                                                                                                                                                                                                                                                            392
                                                                                                                                                                                                                                                                                                                                                                                                                        332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    272
                             832
                                                                         772
                                                                                                                                                                  652
                                                                                                                                                                                         623
                                                                                                                                                                                                                                      563
                                                  802
                                                                                                                                            683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10;
```

```
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    맔
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AC084066/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1095 TGATTCTGTTTGTACTTTTTGGCCTGGGACATGGGTTTTCAAGGGACATCGTCTGTACCA 1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1070 agattittattigtactitttggcctgggatatgggttittaaatggacattgtctgtacca 1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1013 tagca---attaataaagctatacatgcagaaatgcaatacaacagaacactgctcttttt 1069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         833
                Consensus quality: 234207 bases at least Q40
Consensus quality: 22308 bases at least Q30
Consensus quality: 225208 bases at least Q30
Estimated insert size: 200000; pulse field gel estimation
Estimated insert size: 23611; sum-of-contigs estimation
Quality coverage: 11.56 in Q20 bases; pulse field gel estimation
ouality coverage: 9.44 in Q20 bases; sum-of-contigs estimation.
* NOTE: This is a 'working draft' sequence. It currently
* consists of 29 contigs. The true order of the pieces
* is not known and their order in this sequence record is
* arbitrary. Gaps between the contigs are represented as
* runs of N, but the exact sizes of the gaps are unknown.
* This record will be updated with the finished sequence
* as soon as it is available and the accession number will
* be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAGCAGTTATTAATAAAGTTACTCATACAGAAGTGTACGCAACAGA-----CACTGCTTT 1094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGAAAGTGTCTTGAGCAAGACAGTATTGTCAGAAGATCCCAGGAAAGTTCTAATGTTCAT 1039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99cattttaagattttttaaaaatcttgtcagaagatcccagaaaagttctaattttcat 1012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAAGATGACAGATACAGTGAGAGCAACAGCTAACTCCAAAGGTGGCTTCACTGGAGAGAA 979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tgaagctacttttaaaatttgagggtctggaccaaaagaagaggaatatcaggttgaagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       caagatgacagataaggtgagagtaatgactaactccaaagatggcttcactgaagaaaa 952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGAAGCTACTTTTAAAATCTGCGGGTCTGGACCAAAAGAAGAACATCAT--GTTTGTAGT 919
                                                                                                                                                                                                                                                                                                                                                                   Summary Statistics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Center: Joint Ger
Center Code: JGI
                                                                                                                                                                                                                                                                                                                                                                                                              Center clone name: RPCI-23_321D1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AC084066 235411 bp DNA HTG 12-OCT-2000 Mus musculus clone RP23-321D1, *** SEQUENCING IN PROGRESS ***, 29 unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Project Information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Web site: http://www.jgi.doe.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (12-OCT-2000) Production Sequencing Facility, DOE Joint Genome Institute, 2800 Mitchell Drive, Walnut Creek, CA 94598, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 (bases 1 to 235411)
DOE Joint Genome Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
1 (bases 1 to 235411)
DOE Joint Genome Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HTG; HTGS_PHASE1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequencing of Mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AC084066.1 GI:10799415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AC084066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -Genome Center
C: Joint Genome Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                    Project Name:
1210: contig of 1210 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                 2351294
                                                                                                                                                                                                                       estimation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus
```

```
BASE COUNT
ORIGIN
                                                                                                                                      FEATURES
                                                                                                                     source
                62132
                                                                                                                                                                          51477
51577
59009
59109
66219
66379
76879
98099
98099
1139811
114088
114088
1132116
1322116
1322116
1322116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1211
1311
3341
4605
4605
6173
62173
7355
10215
8626
8726
8726
8726
10215
112192
12192
12192
12192
12192
12192
12192
12192
12193
12292
14114
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
14214
1421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        45397
                ø
      /clone_lib="RPCI mouse BAC library
1 54445 c 54225 g 61806 t 2803
                                                    /db_xref="taxon:10090"
/clone="RP23-321D1"
                                                                                            /organism="Mus musculus"
                                                                                                                                  Location/Qualifiers
                                                                                                                                              45396 gap of unknown length
51476 contig of 6080 bp in ler
51576 gap of unknown length
59008 contig of 7432 bp in ler
59108 gap of unknown length
66218 contig of 7110 bp in ler
66318; gap of unknown length
76778; contig of 10460 bp in ler
76878; gap of unknown length
98098; contig of 21220 bp in ler
76878; gap of unknown length
13987; contig of 15789 bp in ler
14087; gap of unknown length
132115; contig of 15789 bp in ler
132215; gap of unknown length
160184; contig of 17969 bp in ler
160284; gap of unknown length
160384; gap of unknown length
16698; contig of 26414 bp in ler
186798; gap of unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gap o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gap o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          unknown
of 5447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of 4944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of 4914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             unknown
of 3186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         unknown
of 2206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   unknown
of 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               unknown
of 1635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       unknown
of 2327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               unknown
of 2453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       unknown
of 1073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             f unknown
y of 1877
f unknown
y of 1922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        y of 1568
f unknown
y of 1082
f unknown
f of 1171
f unknown
of 1389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  f unknown
g of 1930
f unknown
g of 1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5 bp in length
n length
6 bp in length
n length
bp in length
length
bp in length
bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bp in l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     length
bp in l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       length
bp in l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             dq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ďď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ďď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  in length
                                                                                                                                                                                                                                                                                                                                                                                                                                  length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          length
                                                                                                                                                                                           length
                                                                                                                                                                                                                                length
                                                                                                                                                                                                                                                                                                                                                    length
                                                                                                                                                                                                                                                                                                                                                                                            Length
              others
```

Db 113180 TGAAAACCTCAGAGTGAGGTTCTGCCCTGCCGGAGGCCGCAGTGGTGCAGAGACCCCCGGG 113121

Matches Best Query Match

Local Similarity 971;

Conservative

0;

Score 743.6; DB 76; Pred. No. 7e-134; 0; Mismatches 159;

159; Indels

32; Gaps

10;

Length 235411;

50.8%;

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                        밁
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                                                                          Db 112353 TTTAAAATCTGCGGGTCTGGACCAAAAGAAGAACATCAT--GTTTGTAGTCAAGATGACA 112296
                                                                                                                           Ωy
  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          112651 TTGGTTGTTTTTGTTGTGCTGATTTTTGGTGATCAGACCTCAGCTCCCTTAATACTGCCC 112592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             112702 CTGGCACTCCATCTCTTAGAA------CATATGAATTCTAGTGTTCAATATTCATTA 112652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              112942 GGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGAAGGTCAGAGAATTGCTGATAATCA 112883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           113002 TTTCAAAGTGAAAATGACAACACCTCTCAAGAAACTCAAAGAATCATACTGTCAAAGACA 112943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              113062 TAAGAAGGAAGGAGAATACATTAAACTCAAAGTTATTGGACAGGACAGCAGTGAGATACA 113003
                                                                                                                                                                                                                                                                                                                                                                                                                           112412 TGGGAATTTTTCAGAGAACTGAACTGTGG-AAAATGACCTTTCCTCAGCTTGAAGCTACT 112354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                112472 TGGCTCTGAAGTTCCAGCATGTGGTTGCTTCACTCCTGGACTGTGATTTTCAGTGGGAGA 112413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       112591 TTTTTCCTTTAAGAGATTTCATGTGTGCACAGAGAGGCCCACCCTTTTTAGGACTGTGCAT 112532
                                                                                                                                                                      112235 TTGAGCAAGACAGTATTGTCAGAAGATCCCCAGCAAAGTTCTAATGTTCATCAGCAGTTAT 112176
                                                                                                                                                                                                                                                     132 taagaagcaaggtgaatatattaaactcaaagtcattggacaggatagcagtgagattca 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   192 ottoaaagtgaaaatgacaacacatotoaagaaactcaaagaatcatactgtcaaagaca 251
546 ttgttttgttttcattgtgctgattttttggtgatcaagcctcagtccccttcatattaccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       663 tttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttccaa 722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatcagggaacaaac 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ctggcacccatctctttgaaacatctggtaatttgaattctagtgctcattattcatta 545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGGGGGTCACTCGACGGTTTAGATAATTCTTTTTTATTTTTATTTTTCCTTTCCCTCAAT 112763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        999999tcattcaaca9tttagata-----ttctttttatttttttttttttttttccttcaat 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattgctgataatca 311
                                                                                                                                                                                                                                                                                                                                                                                  tttaaaatttgagggtctggaccaaaagaagaggaatatcaggttgaagtcaagatgaca 902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ttggccctgatgttcagcatgtgattacttcactcctggactgtgactttcagtgggaga 782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTTCAGGTTTGTGATGATAAA-AAGATCGACCAATGGGAGCTTTCCTATGACCTTTCAAT 112473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tctcctttttaa---aaattacgtgtgcacagagaggtcacctttttcaggacattgcat 662
                                                                                                                                                                                                                                                                                                                                                                                                                                                      tggaagtttttcagagaactgaactgtggaaaaatgacctttccttaacttgaagctact 842
                                                                                     TAATAAAGTTACTCATACAGAAGTGTACGCAACAGA-----CACTGCTTTTGATTCTGTT 112121
                                                                                                                                                                                            gattttttaaaaatcttgtcagaagatcccagaaaagttctaattttcattagca---at 1019
                                                                                                                           taataaagctatacatgcagaaatgaatacaacagaacactgctctttttagattttatt 1079
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Db 112060 AATAAACAATATTTGTAAAAAA 112039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AL135926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1140 aataaacaatatttgtcaaaaa 1161
                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                         repeat_region
                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human DNA sequence from clone RP11-375F2 on chromosome 1 Contains a pseudogene similar to UBL1 (ubiquitin-like 1 (sentrin)), a pseudogene similar to ribosomal protein L29, ESTs, STSs and GSSs,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     on Aug 14, 2000 this sequence version replaced gi:9621473. During sequence assembly data is compared from overlapping clones. Where differences are found these are annotated as variations together with a note of the overlapping clone name. Note that the variation annotation may not be found in the sequence submission corresponding to the overlapping clone, as we submit sequences with only a small overlap as described above.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IMPORTANT: This sequence is not the entire insert of clone RP11-375F2 It may be shorter because we sequence overlapping sections only once, except for a 100 base overlap. The true right end of clone RP11-375F2 is at 158519 in this sequence. The true right end of clone RP1-10C16 is at 100 in this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                numbers given in the feature table with their source databases:
Em:, EMBL; Sw:, SWISSPROT; Tr:, TREMBL; Wp:, WORMPEP; Information
on the WORMPEP database can be found at
http://www.sanger.ac.uk/Projects/C_elegans/wormpep This sequence
was generated from part of bacterial clone contigs of human
chromosome 1, constructed by the Sanger Centre Chromosome 1 Mapping
Group. Further information can be found at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              annotated human repeat sequence elements (e.g. Alu). Where the sequence is ambiguous, there is an annotation using the 'unsure'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This sequence has been finished according to sequence map criteria as follows. An attempt is made to resolve all sequencing problems, such as compressions and repeats, but not necessarily within known such as compressions and repeats, but not necessarily within known
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CB10 1SA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Chapman, J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AL135926.12 GI:9801286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complete sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       http://www.sanger.ac.uk/HGP/Chr1
RPI1-375F2 is from the library RPCI-11.2 constructed at the Roswell Park Cancer Institute by the group of Pieter de Jong. For further details see http://bacpac.med.buffalo.edu/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      requests: clonerequest@sanger.ac.uk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The following abbreviations are used to associate primary accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 158519)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   рвасез.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eutheria; Primates; Catarrhini; Hominidae; Homo.
3415. .3734
/note="L2 repeat: matches 2373. .2707 of consensus"
4294. .5519
                                                                                                                        1465. 1514
/note="25 copies 2 mer tc 72% conserved"
1775. 1824
                                                                                                                                                                                                                                                        460.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        UK. E-mail enquiries: humquery@sanger.ac.uk Clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (03-OCT-2000) Sanger Centre, Hinxton, Cambridgeshire,
                                                                                                                                                                                                                                                                                                                                                          /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            158519 bp
                                                                                                                                                                                                                note="MLT1J repeat: matches 306. .514 of consensus"
                                                                                                                                                                                                                                                                                                                 /clone="RP11-375F2"
                                                                                                                                                                                                                                                                                                                                                /chromosome="
                                                                                          1775. .1824
/note="MIR repeat: matches 85. .135 of consensus"
                                                                                                                                                                                                                                                                                   /clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                 .158519
                                                                                                                                                                                                                                                                                   _lib="RPCI-11.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30-NOV-2000
```

repeat\_region

```
repeat_region
                                                                            repeat_region
                                                                                                                          repeat_region
                                                                                                                                                                    repeat_region
                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                  /note="LIM4 repeat: matches 3403. .3585 of consensus"
20479. .21023
/note="L1PBa repeat: matches -1540. .-1003 of consensus"
                                                                     note="L1PA7 repeat: matches 3477. .4076 of consensus"
20277. .20462
                                                                                                                      7962. .19671

note="L1PA7 repeat: matches 4077. .5788 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                              complement(14529
                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="MLT1E repeat: matches 385. .567 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /..uce="L2 repeat: matches 2576. .2669 of consensus"
13254. .13403
'note="75 copies 2 marches 2576. .2669 of consensus"
                                                                                                                                                                                                                  note="L1PA7 repeat: matches 5767. .6143 of consensus"
                                                                                                                                                                                                                                                              'note="L1M4 repeat: matches 3093. .3194 of consensus"
                                                                                                                                                                                                                                                          6839. .17215
                                                                                                                                                                                                                                                                                               note="MIR repeat: matches 60. .153 of consensus" .6536. .16633
                                                                                                                                                                                                                                                                                                                                             note="match: GSS: Em:AQ221861"
.5371. .15463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="9 con
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12419. .13151
note="12 repeat: matches 1683. .2403 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="MIR repeat: matches 28. .215 of consensus" 10888 .11321 //note="ILIPA" repeat: matches 5371 .6158 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'note="AluSx repeat: matches 1. .297 of consensus"
.2419    .13151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'note="unidirectional dGTP only"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="AluY repeat: matches 1. .295 of consensus"
11855. .12218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'note="MLT1D repeat: matches 13. .381 of consensus"
11672. .11971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8951. .9347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="L1MB5 repeat: matches 5322. .5428 of consensus"
5652. .5945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="LIMB7 repeat: matches 4938. .6173 of consensus"
5535. .5640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         note="MIR repeat: matches 81. .153 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="MER46A repeat: matches 2. .235 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="9 copies 4 mer aagg 88% conserved"
5997. 6055.
7.0ote="LIMB5 repeat: matches 5413. .5471 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'note="match: GSS: Em:B40536"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 note="AluSx repeat: matches 1. .285 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  note="L2 repeat: matches 2206. .2403 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="AluY repeat: matches 214. .311 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="AluSq repeat: matches 12, .309 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        te="MLT1E repeat: matches 2. .81 of consensus"
45. .14226
                                                                                                                                                                           e="L1PA3 repeat: matches 5410. .6146 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                       e="match: GSS: Em:AQ798857"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    te="24_copies 6 mer tatata 78% conserved"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 te="MLT1D_repeat: matches 381. .492 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          e="match: GSS: Em:AQ887510"
4. .13253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .7101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .11671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . 6855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .12403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 L1MB5 repeat: matches 5460. .6168 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat: matches 2620. .2750 of consensus
                                                                                                                                                                                                                                                                                                                                                                                                                              .15003)
```

```
₽
                                                                                                             Db
                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                   Query Match
31741 AACCTTCAACTGATGACTTGGAGGATAAGAAGGAATGAGAATATGTTAAACTCAAAGTCA 31800
                                                                                         31681 CACTGCATAGCAGTGACCCCTGGGTGAAGCCCCTGTCACCTATGTAAGATCAGGAGGCAA 31740
                      107 aacettcaactgaggacttgggggataagaagcaaggtgaatatattaaactcaaagtca 166
                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                    48 cgctgctgttgcggagacccccggggtgaagccaccgtcatc-atgtctgaccaggaggcaa 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                        Local Similarity
                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                           /note="MLT1F repeat: matches 94. .541 of consensus" 35465. .35500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         match: cDNAs: Em:U72722
match: ESTs: Em:AI191222 Em:AI248769
match: proteins: Tr:Q9pT08 Tr:O23759 Sw:P55853 Tr:Q92172
Sw:Q93068 Sw:P55854 Sw:P55855 Sw:O13351 Sw:Q12306
"Tr:Q97102 Tr:O57686"
                                                                                                                                                                                                                                                                                                                                                         /note="L2 repeat: matches 2624. .2668 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                         /note="match: GSS: Em:AQ195587"
33174. .33222
                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="match: GSS: Em:AQ093192" complement(32404. .32630)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(32129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="match: GSS: Em:AQ747371"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (sentrin))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          note="bA375F2.1 (similar to UBL1 (ubiquitin-like
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'gene="bA375F2.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'note="L2 repeat: matches 466. .712 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="L1M1 repeat: matches 5338. .5450 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21083. .22136
/note="LIPBa repeat: matches -977. .1014 of consensus"
22104. .24249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'note="Alux repeat: matches 1. .310 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              note="L1MC5 repeat: matches 7262. .7589 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note="L1MC4 repeat: matches 7094. .7422 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'note="LIMC/D repeat: matches 5637. .5685 of consensus"
17552. .27933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="match: STS: Em:HS045M12S"
27233. .27346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="6 copies 6 mer tgtgtg 97% conserved"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'note="L1MC4 repeat: matches 6621. .7006 of consensus"
'7982. .28315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            note="L2 repeat: matches 2064. .2155 of consensus"
?7438. .27487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note="L2 repeat: matches 2549. .2668 of consensus"
?7347. .27437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="L1 repeat: matches 2118. .2843 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="L1M2 repeat: matches 37. .2571 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'note="AluY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          note="L1ME1 repeat: matches 5508. .6163 of consensus"
                                                                                                                                                                                     49.4%; Score 724.4; DB 89; Length 158519;
89.2%; Pred. No. 3.5e-130;
ative 0; Mismatches 91; Indels 12; G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    e="bA375F2.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "AluY repeat: matches 1. .282 of consensus" .27647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .24890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MIR repeat: matches 71. .190 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .28938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat: matches 2362. .2474 of consensus"
                                                                                                                                                                                       Indels 12; Gaps
```

```
50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                            SOURCE
                                                                                                                     VERSION
                                                                                                                                ACCESSION
                                                                                                                                             DEFINITION
                                                                                                                                                                      AC011450/c
                                       REFERENCE
                                                                                                       KEYWORDS
                                                                                                                                                            Locus
             TITLE
                                                                              ORGANISM
                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31921 AAGATCAGAGAATTGCTGCTACTCATACTATAAAAGAACTGGGAATGGAGTAAGAAGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          32039
                                                                                                                                                                                                                                                                            32219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 467
                                                                                                                                                                                                                          tcaaagaatcatactgtcaaagacagggtgttccaatgaattcactcaggttttctctttg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGATTGAAGTTTATCATGAGCAAA---TGAGGTCATTCAGTAGTTTAGGTATTCTTTTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ttcaaaacggaattgaaaactggcaccccatctctttgaaaccatctggtaatttgaattc 526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tgattgaagtttatcaggaacaaacggggggtcattcaacagtttagatattcttttat 406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                agggtcagagaattgctgataatcatactccaaaagaactgggaatggaggaagatg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGTTCCCTTCGTATTGCCCCTCTCCTTTTTAAAAATTACATGTGTGCACAGAGAGACCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              agtcccttcatattaccctctcctttttaaaaattac--gtgtgcacagagaggtcacc 644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TAGTGCTCATTATTCATTATCATTTGCTTTCATTGTGATTTTTGGTGATCAAGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tagtgctcattattcattattgttttgttttcattgtgctgattttttggtgatcaagcctc 586
                                                                                                                                                                                                                                                                                                                                                                                                    tgtgactttcagtgggagatggaagtttttcagagaactgaactgtggaacaatgacctt 823
                                                                                                                                                                                                                                                                                                                                                                                                                                            TTTGTAAAGACTTCCCAATTGGCCCTAAAGTTCTAGCATGTGATTGCTTCACTCCTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCCTTAACTTGAAGATAGCTTTAAAATT--AGAGTCTAGACCAAAAGAAGAAGAATAGCA 32516
                                                                                                                                                                                                                                                                                                                                                                                      TGTGACTTTCACTGGGAGATGTAAGCTTTTCAGAGAACTGAACTGTGGAAAAAATGACCTT
                                                                                                                                                                                                                                                                                                                                                 toottaaottgaagotaottttaaaatttgagggtotggaccaaaagaagagggaatatca 883
                          1 (bases 1 to 106168)
DOE Joint Genome Institute and Stanford Human Genome Center
Unpublished
             Direct Submission
                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                            Homo sapiens
                                                                                                                     AC011450.4 GI:7670120
                                                                                                                                             Homo sapiens chromosome
                                                                                                                                                            106168 bp
                                                                                                                                                DNA PRI 29-APR-2000
19 clone CTC-30107, complete sequence
                                                                                                                                                               29-APR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 32098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             31920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          32218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     32338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       32278
```

```
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                               20
                                                                                                       δõ
                                                                                                                                             B
                                                                                                                                                                              20
                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                        δõ
                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 1074;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                            74562 ACTTGGGGGATAAGAAGGAAGGTGAATATATAAACTCAAAGTCACTGGACAGGATAGCA 74503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             74622 GACCCCTGGGTGAAGCCACTGTCATCATGTCTGACCAGGAGGCAAAACCTTCAACTGAGG 74563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      74682 GAGATGGATTTGTGAACCCTGGAGTGCGGTTCTGCCTACTCGAGGCCGCTGCTGTGTGGA 74623
                                                                                                                                                                                                                                                                                             74383 CTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGAAGATGTGATTGAAGTTTATC
                                                                                                                                                                                                                                                                                                                                                                      74442 GTCAAAGACAGGGTATTCCAATGAATCCACTC-GGTTTCTCTTTGAGGGTCAGAGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNT
                                                                                                                                                                                                                       74323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122
                                                                                                                                                                                                                                                                                                                                                                                                       242 gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             acttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagca 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gaccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg 121
                                                                                                                                                                                                                   ctgataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatc 361
TATTCATTATCATTTGTTTTCATTGTGCTGATTTTTGGTGATCAAGCCTCAGTCCCCTTC
                 tattcattattgtttgttttcattgtgctgatttttggtgatcaagcctcagtccccttc 596
                                                                      AATTGAAAACTGGTACCCCCATCTCTTTGAAACATCTGGTAATTTGAATTCTGGTGTTCAT 74147
                                                                                            aattgaaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcat 536
                                                                                                                                              TCGATCCTTTAATCCTTTATTTTTAAAAATAGTTCCTTTGTAATGTGGTGTTCAAAACGC 74207
                                                                                                                                                                  tcaatcottt-----tttatttttaaaaatagttottttgtaatgtggtgttcaaaacgg 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 (bases 1 to 106168)
DOE Joint Genome Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (29-APR-2000) DOE Joint Genome Institute, 2800 Mitchell Drive, Walnut Creek, CA 94598, USA on Apr 29, 2000 this sequence version replaced 91:7021594.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Direct Submission Sequencing Facility, DOE Joint Submitted (07-OCT-1999) Production Sequencing Facility, DOE Joint Genome Institute, 2800 Mitchell Drive, Walnut Creek, CA 94598, US: 3 (bases 1 to 106188) DOE Joint Genome Institute and Stanford Human Genome Center.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Quality: Phrap Quality >=40 99.8% of Sequence: Estimated Total Number of Errors is 0.3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    www-shgc.stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Finishing Completed at Stanford Human Genome Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       www.jgi.doe.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Draft Sequence Produced by DOE Joint Genome Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SHGC-58287 G38466.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SHGC-34723 G28380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STS Content:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1. .106168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone="CTC-30107"
24429 c 24340 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /chromosome="19"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    41.98;
73.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24340 g 31243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 614.4; DB 87; Length 106168;
Pred. No. 6e-109;
0; Mismatches 71; Indels 327; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 106168;
                                                                                                                                                                                                                                                                                                         74324
                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
```

밁

```
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                 QΥ
                                           SOURCE
                                                                                                                                           AC068786
                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                    Db
                                                                                                                                                                                                                                                                                                                                                                                               Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                           Ф
                                                                                    ACCESSION
                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ŋ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                             ORGANISM
                                                                                                                                                                                                                                               73308 ----TTTTATTTGTTCTTTTTGGCCTGGGATATGGGTTTTAAATGGACAT----TGTACC 73257
                                                                                                                                                                                                                                                                                                    73366 TCATTAGCAATTAATAAAGCAATACACGTAGAAATGAATAAGGCAGAACACTGCTCTT-- 73307
                                                                                                                                                                                                                                                                                                                                                                      73426
                                                                                                                                                                                                           1129 agcttcattaaaataaacaatatttgtcaaaa 1160
                                                                                                                                                                                                                                                               1069 tagattittatttgtacttttttggcctgggatatggggttttaaatggacattgtctgtacc 1128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         73606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73666 ATGACTTTCCAACTGGCCCTGATGTTCTAGCATGTGATTGCTTCACTCCTGGACTGTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            73726 ACATTGCATTTTCAGGCTTGTGGTGGTGATAAGTAAGATCGGCCAATGCAGGTGTTCATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 73786 CCCAGCCTACCCTCTCCTTTTAAAAATTACGTGTGCACAGAGAGGCCACCTTTTTCAGG 73727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        73846 CTTGTGATCTGCCAGCCTCGGCCTCCTAAAGTGCTGGGATTACAGGCGTGAGCCACCGCG 73787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              73906 TGTATTTTCAGTAGAGACGGGCTTTCACCGTGTTAGCCAGGATGGTCTCGATCTCCTGAT 73847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          74026 TGCTGTGGCGCGATCTCGGCTCACTGCAACCTCCACCTCCCGGGTTCACTCCATTCTCCT 73967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 74086 ATATTACCCTCCTTTTTTTTTTTTTGAGACGGAGTCTCGCTCTATCGCCCAGGATGGAG 74027
                                                                                                                                                                                                                                                                                                                                                                                                 949
                                                                                                                                                                                                                                                                                                                                                                                                                                                      889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     654 acattgcattttcaggctt---gtggtgataaataagatcgaccaatgcaagtgttcata 710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      597
                                                                                                                                                                                            AGCTTCATTAAAATAAACAATATTTGTAAAAA 73225
                                                                                                                                                                                                                                                                                                                      tcattagcaattaataaagctatacatgcagaaatgaatacaacaggaacactgctcttt 1068
                                                                                                                                                                                                                                                                                                                                                           AAAAGGCATTTTAAGATTTTTTTAAATCTTGTCAGAAGATCCCAGAAAAGTTCTGATTT 73367
                                                                                                                                                                                                                                                                                                                                                                            aaaaggcattttaagattttttaaaaatcttgtcagaagatcccagaaaagttctaattt 1008
                                                                                                                                                                                                                                                                                                                                                                                                                  AAGTCAAGACGACAGATCAGGTAAGAGTGATGCCTAACTCCAAAGATGGCTTCACTGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                 aagtcaagatgacagataaggtgagagtaatgactaactccaaagatggcttcactgaag 948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AACTTGAAGGTACTTTTAAAATTTGAGGGTCTGGACCAAAAGAAGAGGAATATCAGGTTG 73487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aacttgaagctacttttaaaatttgagggtctggaccaaaagaaggaggaatatcaggttg 888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTCAGTGGGAGATGGGAGTTTTTTCAGAGAACTGAACAGTGGAAAAACGACCTTTCCTT 73547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCTCAGCCTCCCGAGTAGCTGGGATTACAGGCACCCGCCACCACGCCTGGCTAATTTTT 73907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      atat----
       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
                          Homo sapiens
                                                                                         Homo sapiens chromosome 19 clone RP11-50I11, SEQUENCE, 15 unordered pieces.
                                                               AC068786.11 GI:13249431
                                                                                    AC068786
                                                                                                                            AC068786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HTGS_PHASE1; HTGS_DRAFT; HTGS_FULLTOP
                                                                                                                         178733 bp
                                                                                                         WORKING
                                                                                                                   08-MAR-2001
       Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished
                92185
92285
                                           58762
58862
73754
73854
                                                                                                              16879
24170
24270
24270
34334
46448
                                                                                                                                                                                               7666
7766
11507
11607
116779
                                                                                                   46548
                                                                                                                                                                                                                                                                       1626
1726
3492
3592
5211
5311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Center project name:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Web site:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Center code: SDSTDC
                                                                                                                                                                                                    16878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Genome
contig
gap of
                          gap of
contig
gap of
                                                                                                                           gap of contig gap of contig
                                                                                                                                                                                   gap of contig
                                                                                                                                                                                                                                         gap of contig
                                                                                                contig
                                                                                                            gap of
```

```
On Mar 8, 2001 this sequence version replaced gi:13236646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (09-May-2000) DNA Sequencing and Technology Center, Stanford University, 855 California Avenue, Palo Alto, CA 94304,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 (bases 1 to 178733)
2 (bases 1 to 178733)
Abola,A.P., Bruno,D., Conn,L., Dela Rosa,M., Faulkner,D., Federspiel,N., Glukhov,S., Hansen,N., Herman,2.S., Hyman,1 Mao,J., Marathe,R., Morehouse,A.J., Oefner,P., Palm,C.J., Ramirez,D., Wilhelmy,J., Yu,S. and Davis,R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 17873)
Abola,A.P., Bruno,D., Conn,L., Dela Rosa,M., Faulkner,D.,
Federspiel,N., Glukhov,S., Hansen,N., Herman,Z.S., Hyman,R.,
Mao,J., Lam,B., Marathe,R., Miranda,M., Morehouse,A.J., Nguyen,M.,
Oefner,P., Palm,C.J., Ramirez,D., Southwick,A.M., Wilhelmy,J.,
Yu,S., and Davis,R.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Insert size: 178045; agarcse-fp
Insert size: 177333; sum-of-contigs
Quality coverage: 9.2x in Q20 bases; agarcse-fp
Quality coverage: 9.2x in Q20 bases; sum-of-contigs.
Portion of the process of the pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         as soon as it is available and the accession number will be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chemistry: Dye-primer; 0% of reads (Chemistry: Dye-terminator Big Dye; 100% of reads (Assembly program: Phrap; version 0.99319 (Consensus quality: 168546 bases at least Q40 (Consensus quality: 171030 bases at least Q30 (Consensus quality: 172366 bases at least Q20 (Consensus quality: 172366 bases 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequencing Vector: M13mp18; X02513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Center clone name: RP11-50I11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Center: Stanford DNA Sequencing and Technology Development

    Summary Statistics

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1625: contig of 1625 bp in length
1725: gap of unknown length
3491: contig of 1766 bp in length
3591: gap of unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gap of unknown contig of 1619 gap of unknown contig of 2355 gaps.
                                                                                                                                                                                                                                          gap of unknown length contig of 14892 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gap of unknown contig of 5172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     unknown
of 3741
                                                                                                                        unknown length of 18331 bp in
      of 22161
                                                                                                                                                                                                                                                                                                                                                            of 12214 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          of 12014 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of 7291
                                                                           unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                 unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of 10064 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          unknown
                                                                     length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length
                                                                                                                                                                                                                                                                                                                                                                                                                                 length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                bp in length
length
bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Herman, Z.S., Hyman, R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100% of reads
            length
                                                                                                                        length
                                                                                                                                                                                                                                                length
                                                                                                                                                                                                                                                                                                                                                                  length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            length
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                              밁
                            Š
                                                       밁
                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                         Query Match 41.9
Best Local Similarity 73.0
Matches 1074; Conservative
                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                50350 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      140511
                                                                                                                                                                                                                                                                                                                                                                                                                             92285. .114445

/note="assembly_name:Contig41

clone_end:SP6"

114546. .140410

/note="assembly_name:Contig42"

140511. .178733

/note="assembly_name:Contig43"

/note="assembly_name:Contig43"

/note="assembly_name:Contig43"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1726. .3491

/note="assembly_name:Contig24"

3592. .5210

/note="assembly_name:Contig30"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="assembly_name:Contig21"
1726. .3491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="19"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="assembly_name:Contig38 clone_end:T7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="assembly_name:Contig37"
46548. .58761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="assembly_name:Contig34"
16879. .24169
/note="assembly_name:Contig35"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7766. .11506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="RP11-50111"
/clone_lib="RPCI human BAC library 11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="assembly_name:Contig39"
73854._.92184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="assembly_name:Contig36"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11607. .16778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="assembly_name:Contig33"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="assembly_name:Contig32"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="assembly_name:Contig40"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   140410: contig of 25865 bp in length 140510: gap of unknown length 178733: contig of 38223 bp in length.
                                                                                                                                                                                                                                                                                                                                         41.9%; Score 614.4; DB 73; Length 178733; 73.0%; Pred. No. 6.1e-109; ative 0; Mismatches 71; Indels 327; G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .7665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .34333
                                                                                                                                                                                                                                                                                                                                                                                                                                   1401 others
                                                                                                                                                                                                                                                                                                                                                 Indels 327; Gaps
```

9;

1128 12125	tagattttatttgtacttttttggcctgggatatgggttttaaatggacattgtctgtacc 	1069 121204	Qy Db	
1068 12120	tcattagcaattaataaagctatacatgcagaaatgaatacaacagaacactgctcttt	1009 121146	Qу рь	
1008 121145	aaaaggcattttaagatttttaaaaatcttgtcagaagatcccagaaaagttctaattt	9 <b>4</b> 9 121086	Qy Db	
948 121085	aagtcaagatgacagataaggtgagagtaatgactaactccaaagatggcttcactgaag 	889 121026	Qy Db	
888 121025	aacttgaagctacttttaaaatttgagggtctggaccaaaagaagaggaatatcaggttg 	829 120966	Qy Db	
828 120965	tttcagtgggagatggaag-tttttcagagaactgaactg	770 120906	Qy dd	
769 120905	atgactttccaattggccctgatgttc-agcatgtgattacttcactcctggactgtgac 	711 120846	Оу	
710 120845	acattgcattttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcata 	654 120786	Qy Db	
653 120785	taccctctcctttttaaaaattacgtgtgcacagagaggtcaccttttcagg	601 120726	Qу	
120725	TGTGATCTGCCAG	66	dd dd	
600		601		
120665	TGTTATTTTCAGTAGAGAGACGGGCTTTCACCGTGTTAGCCAGGATGGTCTCGATCTCCTGAT	601	D 09	
o N	AGGCACCCGCCACCACGCCTGGCTAATTTTT	120546	-	
00		601	Qy	
N	4	86		
600		601	Qy	
600 120485	atat	597 .20426	. Qy	
596 120425	tattoattattgtttgttttcattgtgctgatttttggtgatcaagcctcagtccccttc	537 .20366	Qy Db 1	
536 120365	attgaaaactggcacccatctctttgaaacatctggtaatttgaattctagtgctcat 	477 a    20306 A	Qy Db 1	
176 120305	CGATCCTTTAATCCTTTATATAAAAATAGTTCCTTTGTAATGTGGTGTTCAAAACGC 1	422 t 20246 T	Qy Db 1	
121 120245	aggaacaaacggggggtcattcaacagtttagatattctttttatttttttt	362 a	Qy Db 1	

Search completed: August 15, 2001, 16:06:02 Job time: 3108 sec

.

page 1

us-09-484-964-1.rng	11 1 936 22 AAF58257
Thu Aug 16 08:48:50 2001	163 11.1 936 22 AAR58255 163 11.1 936 22 AAR58252 163 11.1 938 22 AAR58252 163 11.1 938 22 AAR58254 163 11.0 936 22 AAR58257 161.2 11.0 936 22 AAR58257
~ ~	161.2 11.0 936 22 AAFS9252 161.2 11.0 936 22 AAFS9258 161.2 11.0 938 22 AAFS9268 161.2 11.0 938 16 AAR19568 161.2 11.0 180 16 AAR4970 161.4 10.3 639 21 AAR457316
OM nucleic - nucleic search, using sw model search time 131.67 seconds (without alignments) without alignments (without alignments) seconds (without alignments) and seconds (seconds) seconds (	92 6.2 6.43 21 AAC391200 P 90.4 6.2 710 21 AAC46716 P 95.8 5.5 21 AAC431493 F 85 5.7 505 21 AAC431493 F 84 5.6 1859 21 AAC69094
064-1	81 5.5 1859 24 AAA31186 81 5.5 351 21 AAA31177 1 81 5.5 356 21 AAA3177
US-09-484-964-1	80.4 5.4 374 20 AAV 28781 P. 79.2 5.3 3903 22 AAX58060 177.6 5.1 3903 20 AAX58060 177.6 5.1 3900 20 AAX58060 177.6 5.1 30 AAX5806
t score 1 C999 10.0 , Gapext 1.0	5.1 16807 21 AACC3 7 25 5.1 537 21 AAFIG 336 4.9 444 21 AAZ94114 4.6 445 21 AAZ94114
Scoring Table 13950809 100 1460202	65.2 4.5 244 22 AFF58238 65.8 4.2 244 22 AFF58238 60.8 4.1 244 22 AFF58238
Searched:	4.0 212 14 AAO39 160 4.0 212 14 AAE12690 3.9 647 21 AAE12690
Total number of length: 000000000000000000000000000000000000	56.0 3.6 243 21 AAA31745 53 3.5 243 21 AAA517445 51.4 3.4 302 21 AAF11445
ssing:	•
Database: 1: /SIDS1/gcgdata/genesed/genesedn/NA1981.DAT: *  N_Genesed_Genesed/genesedn/NA1982.DAT: *  N_Genesed_Vallesed/genesedn/NA1983.DAT: *  N_GENESE/gcgdata/genesed/genesedn/NA1983.DAT: *	
س جان	34.5
7: /SIDS1/9cydata/genesed/yeneseqn/wa1990.DAT: * 9: /SIDS1/9cydata/genesed/geneseqn/wa1990.DAT: * 9: /SIDS1/9cydata/genesed/geneseqn/wa1991.DAT: *	AAV34564; 11-SEP-1998
11: /SIDSI/gegdata/genesed/genesedr/NA1993.DAT: * 12: /SIDSI/gegdata/genesed/genesedr/NA1995.DAT: * 13: /SIDSI/gegdata/genesed/genesedr/NA1995.DAT: * 14: /SIDSI/gegdata/genesed/genesedr/NA1995.DAT: * 14: /SIDSI/gegdata/genesed/genesedr/NA1995.DAT: *	Homo sar- sentrin-1; prote sentrin-1; deter fas/APO-induced; fas/APO-induced; detection; deter
16: /SIDS1/gcgdata/genesed/genesedn/NA1998.bd: * 17: /SIDS1/gcgdata/genesed/genesedn/NA1999.bAT: * 18: /SIDS1/gcgdata/genesed/genesedn/NA2000.bAT: * 18: /SIDS1/gcgdata/genesedn/NA2001.bAT: *	XX Homo sapiens.  OS Location/Qualifiers  XX Key 88.393  XX Key 88.393
19: /SIDS1/gcgdata/genesed/geneseqn/NAZOT to have a 20: /SIDS1/gcgdata/geneseq/geneseqn/ Chance to have a 21: /SIDS1/gcgdata/genesed/geneseqn/ Chance to have a 21: /SIDS1/gcgdata/genesed/geneseqn/NAZOT to have a 21: /SIDS1/gcgdata/genesed/yeneseqn/NAZOT to have a 21: /SIDS1/gcgdata/genesed/yeneseqn/NAZOT to have a 20: /SIDS1/gcgdata/genesed/yenesed/yeneseqn/NAZOT to have a 20: /SIDS1/gcgdata/genesed/yenesed	CDS
No.	WO9820038-A1.
MAKIE Description	
Query Length DB ID Human St Human Match Length DB AAV34564 Human	05-NOV-1996;
1465 100.0 1514 21 AAV35859 1465 100.0 1514 21 AAV59557 1465 107.8 1514 21 AAV59757	Yeh E
1286.6 77.2 126 19 1131.2 76.6 166 21 18 469.2 37.2 37.2 18 36.8 25.2 37.2 27 368.8	XX WPI; 1998-286868/2-7
21. AAFA43104 21. AAF58254 22. AAF58254 22. AAF58254	

P-PSDB; AAW60079.

```
661 attttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttcc 720
                                              661 attttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttcc 720
                                                                                     601 taccetetettttaaaaattacgtgtgcacagagaggtcaccettttecaggacattgc 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Дb
                                                                                                    601 taccototocottttaaaaattacgtgtgcacagagaggtcaccttttcaggacattgc 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                         541 cattattgtttgttttcattgtgctgatttttggtgatcaagcctcagtccccttcatat 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                          541 cattattytttytttcattytyctgatttttgytyatcaagcotcagtcoccttcatat 600
                                                                                                                                                                                               481 9aaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcattatt 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Д
                                                                                                                                                                                                                 481 gaaaactggcacccatctctttgaaacatctggtaatttgaattctagtgctcattatt 540
                                                                                                                                                                                                                                                   421 ctcaatcottttttattttaaaaatagttottttgtaatgtggtgttcaaaacggaatt 480
                                                                                                                                                                                                                                                                   421 ctcaatcetttttatttttaaaaatagttettttgtaatgtggtgttcaaaacggaatt 480
                                                                                                                                                                                                                                                                                                          δĀ
                                                                                                                                                                                                                                                                                                                                                           301 9ctgataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttat 360
                                                                                                                                                                                                                                                                                                                                                                             301 gctgataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagttat 360
                                                                                                                                                                                                                                                                                                                                                                                                             241 tgtcaaagacagggtgttccaatgaattcactcaggtttctctttgagggtcagagaatt 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CC The sequence is that encoding the Sentrin-1 polypeptide. CC Cells from tumour nechave the ability to protect or guard cell death (apoptosis). Inhibitors of the sentrin polypeptide. CC e.g. antibodies, can be used for inducing the aggressiveness of a tumour serious cell death, polypeptides. CC determining the aggressiveness of a tumour of the sentrin polypeptides, as a base of the sentrin polypeptides, the sentrin polypeptides, the sentrin polypeptides, the sentrin polypeptide of the sentrin polypept
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181 agigagattoacticaaagigaaaatgacaacacatotcaagaaactcaaagaatcatac 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181 agtgagattcacttcaaagtgaaatgacaacacatctcaagaaactcaaagaatcatac 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121 gacttgggggataagaagcaaggtgaatatataaactcaaagtcattggacaggatagc 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121 gacttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagc 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 agacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgag 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 agacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgag 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 cgggaaggatttgtaaaccccggagcgaggttctgcttacccgagggccgctgctgtgcgg 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 cgggaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgg 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1465 BP; 455 A; 248 C; 292 G; 470 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 10; Page 76-77; 120pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New isolated Sentrin polypeptide(s) - which inhibit TNF receptor or death in tumours
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #ilarity 100.0%; Score 1465; DB 19; Length 1465; O; Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        us-09-484-964-l.rng
XX
FF FF XX
```

Д Ş В Ş Дδ

/product= "sentrin" Location/Qualifiers Д Qγ

Дb

δõ

FT.	FHX	OS XX	XE	žg:	A X B							_														
CDS	Ae Only	Huma inhil	Huma	03	~ . U	TIUE	Db 1	•	Db 5	0 6	, 60 1	Db ,	φ 40	γQ	дa	^									-	_
•		; sentrin; antisense oligonucleo;	entrin nu	EB-2000	35859 standard; cDNA; 151/ c	2 Jayuargecagee 1465	aggtacccaatca	1 tyttagara	138] tgttttttaaaaacttqata+.   138] telliiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	1321	1321 agtgccttctra	1201 tttttcttcattactgtacagggar	201	1201 adagaare.	ataaacaatatttgtcaadaarco.	7147 -	9tactttttggcctgggaaatgaatgaatacaacagaacant	1021   11   11   11   11   11   11   12   12   13   14   15   15   16   16   16   16   16   16	agatttttaaaaatcttgtcaqaanatillillillillillitctaattttaattttaa	961 aag		901 Cagata 9999ccaaaagaagaagagaatacaactgaagcta 8.	941 cttttaagaggto. 1911 cttttaagagggto. 1911 cttttaagagggto.	Qy 781 gatggatgttcagcatgttcactcctcactcctggactgtgactttcagtggga 780	721	2

US5985664-A

```
SEUN
```

```
밁
                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                       QY
                                                                                                      В
                                                                                                                                 Š
                                                                                                                                                                                         Qy
                                                                                                                                                                                                                            Вþ
                                                                                                                                                                                                                                                      Š
                                          В
                                                                  Q
                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                             Matches 1384;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The present invention describes an antisense compound (1) 8-30 nucleotides long targeted to a nucleic acid molecule encoding human sentrin. The antisense compound comprises a phosphorothioate antisense oligonucleotide which inhibits expression of human sentrin. (1) is useful for inhibiting expression of sentrin in human cells or tissues in vitro, for treating humans or other animals suspected of having or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (ISIS-) ISIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1514 BP; 462 A; 256 C; 314 G; 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sequence encodes human sentrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Example 13; Column 39-42; 29pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Antisense compound which modulates human sentrin expression, useful for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-NOV-1999
                                                                                                                                                                                                                                                                                         110
                                                                                                                                                                                               182
                                                                                                                                                                                                                             170
                                                                                                                                                                    230
                                                                                                                                                                                                                                                           122
                                             350
                                                                        302
                                                                                                        290
                                                                                                                                                                                                                                                                                                                    62
                                                                                                                                                                                                                                                                                                                                                  50
                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000-022284/02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g prone to a disease associated with sentrin expression. (I) can be used for research or diagnostic purposes. The present
                                                                                                                                                                                                                                                                                                      gaccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg 121
                                                                                                                                                                                                                                                                                                                                               gggaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgga 109
                                                                                                                                                                                                                                                                                                                                                                gggaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgga 61
                                                                                                                     gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg
                                                                                                                                                                               gtgagattcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcatact
                                                                                                                                                                                                                             acttgggggataagaaggaaggtgaatatattaaactcaaagtcattggacaggatagca
                                                                                                                                                                                                                                             acttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagca
                                                                                                                                                                                                                                                                                      gacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg
                                                          ctgataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatc
ctgataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatc
                                                                                                      gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg
                                                                                                                                                                 gtgagattcacttcaaagtgaaaatgacaacatctcaagaaactcaaagaatcatact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAY49967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   diseases associated with sentrin expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cowsert LM;
                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98US-0213768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98US-0213768.
                                                                                                                                                                                                                                                                                                                                                                                                                         87.8%;
94.1%;
                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                           Score 1286.6; DB 2
Pred. No. 1.9e-278;
0; Mismatches 74;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 21; Length 1514;
                                                                                                                                                                                                                                                                                                                                                                                                              74; Indels
                                                                                                                                                                                                                                                                                                                                                                                                              13; Gaps
                  421
                                                                                                                                                                                                                                                              181
                                                 409
                                                                                                                                                                       289
                                                                                                                                                                                                  241
                                                                                                                                                                                                                                229
                                                                                                           349
                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                  4.
```

밁 Qy В Qy В οy

530

aaaactggcacccatctctttgaaacatctggtaatttgaattctagtgctcattattc

tcaatccttttttatttttaaaaatagttcttttgtaatgtggtgttcaaaacggaattg 

481

541 529

RESULT
AAV59557
ID AAV5
XX
AC AAV5
XX
AC AAV5
XX
AC AAV5
XX
AX

AAV59557

AAV59557 standard;

DNA; 1220

ВP

ω

06-JAN-1999

(first entry)

tcaatccttttttatttttaaaaatagttcttttgtaatgtggtgttcaaaacggaattg

aaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcattattc

```
γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                     ρ
                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         γΩ
                                                               망
                                                                                                                                                        Qy
                                                                                                                                                                                         В
                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                         Ъ
                                                                                                                                                                                                                                                                                                                     밁
                              Š
                                                                                          Qy
                                                                                                                           밁
 1484
                               1435
                                                               1424
                                                                                                                                                             1315
                                                                                                                                                                                           1304
                                                                                                                                                                                                                           1255
                                                                                                                                                                                                                                                         1244
                                                                                                                                                                                                                                                                                       1195
                                                                                                                                                                                                                                                                                                                                                                                    1124
                                                                                                                                                                                                                                                                                                                                                                                                                   1075
                                                                                                                                                                                                                                                                                                                                                                                                                                                  1065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 acceteteetttttaaaaattaegtgtgeacagagaggteaeettttteaggaeattgea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               attattgtttgttttaattgtgctgatttttggtgatcaagcctcagtccccttcatatt 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         attggccctgatgttcagcatgtgattacttcactcctggactgtgactttcagtgggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              attattgtttgttttcattgtgctgatttttggtgatcaagcctcagtccccttcatatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     accetetecttttaaaaattacgtgtgcacagagaggtcacetttttcaggacattgca
                                                                                                                                                                                                                                                                                                                                      attaaaataaacaatatttgtcaaaaatcgtactaatgcttattttattttaattgtata 1194
                                                                                                                                                                                                                                                                                                                                                                                                    ttatttqtactttttggcctgggatatgggttttaaatggacattgtctgtaccagcttc
                                                                                                                                                                                                                                                                                                                                                                                                                                               gcaattaataaagctatacatgcagaaatgaatacaacagaacactgctctttt-gatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                gcaattaataaagctatacatgcagaaatgaatacaacagaacactgctctttttagatt 1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cattttaagattttttaaaaatcttgtcagaagatcccagaaaagttctaattttcatta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         agatgacagataaggtgagagtaatgactaactccaaagatggcttcactgaagaaaagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        agatgacagataaggtgagagtaatgactaactccaaagatggcttcactgaagaaaagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         agctacttttaaaattttgagggtctggaccaaaagaagaggaatatcaggttgaagtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         agctacttttaaaa-tttgagggtctggaccaaaagaagaggaatatcaggttgaagtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ctttccaattggccctgacagagaactgaactgtggaaaaatgacctttccttaacttga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           atggaagtttt-----tcagagaactgaacttgtggaaaaatgacctttccttaacttga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tgggagatggaagtttttgtggtgataaataagatcgaccaatgcaagtgttcataatga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ttttcaggctttgttctagca----tgtgattacttcactcctggactgtgactttcag
                                                                                                                                                                                                                                                                                                                     attaaaataacaatatttgtcaaaaatcgtactaatgcttattttattttaattgtata
                                                                                                                                                                                                                                                                                                                                                                                 ttatttgtactttttggcctgggatatgggttttaaatggacattgtctgtaccagcttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cattttaagattttttaaaaatcttgtcagaagatcccagaaaagttctaattttcatta
                                                                                                                                                                                                          acaaattttttcttcattactgtacagggatgatgttaatgactttggagcactgaaagt
                                                                                                                                                                                                                                                                      gaaagaaaaaatgcctaaaattaaggttttcttgcataaatactggaaattgcacatggt
                caatcatgttggataaatgggcatgccagcc 1465
                                                            gtgttctgtttttttaaaaacttgatattcccgtatggtgcatatttgatacaggtacc
                                                                              gtgttctgttttttttaaaaacttgatattcccgtatggtgcatatttgatacaggtacc
                                                                                                                                                                                           acaaatttttcttcattactgtacagggatgatgttaatgactttggagcactgaaagt
                                                                                                                                                                                                                                                       gaaagaaaaaaatgcctaaaataaggttttcttgcataaatactggaaattgcacatggt
caatcatgttggataaatgggcatgccagcc
                                                                                                                           tactgaagtgccttctgaatcaaggatttaattaaggccacaatacctttttaatactca
                                                                                                                                              tactgaagtgccttctgaatcaaggatttaattaaggccacaatacctttttaatactca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               884
                                                                                                    1434
                                                                                                                                    1423
                                                                                                                                                                  1374
                                                                                                                                                                                                                                                                                                                               1243
                                                                                                                                                                                                                                                                                                                                                                                         1183
                                                                                                                                                                                                                                                                                                                                                                                                                        1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 944
                                                                      1483
```

```
111 APR-1997
11 APR-1997
123 MAY-1997
23 MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02-OCT-1997

07-MAR-1997

07-MAR-1997

07-MAR-1997

07-MAR-1997

07-MAR-1997

07-MAR-1997

07-MAR-1997

07-MAR-1997

11-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human; secreted protein; fusion protein; gene therapy; protein therapy; diagnosis; tissue; cancer; tumour; neurodegenerative disorder; leukaemia; developmental abnormality; foetal deficiency; blod; allergy; renal; ds; immune system; asthma; lymphocytic disease; brain; hepatic; lymphoma; inflammation; ischaemic shock; Alzheimer's disease; restenosis; AIDS; cognitive disorder; schizophrenia; prostate; obesity; osteoclast; thymus; osteoporosis; arthritis; testis; lung; thyroiditis; thyroid; digestion; endocrine; metabolism; regulation; malabsorption; gastritis; neoplasm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        06-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11-SEP-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        W09839448-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human secreted protein gene 47 clone HOGAV75.
          97US-0047600.
97US-0047601.
97US-0047612.
97US-0047613.
97US-0047613.
97US-0047615.
97US-0047617.
                                                                                                                         970S-0047492
970S-0047501
970S-0047501
970S-0047501
970S-0047501
970S-0047581
970S-0047581
970S-0047585
970S-0047586
970S-0047586
970S-0047586
970S-0047588
970S-0047589
970S-0047592
970S-0047592
970S-0047592
970S-0047593
970S-0047593
970S-0047595
970S-0047595
970S-0047595
970S-0047595
                                                                                                                                                                                                                                                                                                                                                                                                                                      970S-0040336.

970S-0040626.

970S-0043311.

970S-0043313.

970S-0043313.

970S-004336.

970S-0043568.

970S-0043569.

970S-004356.

970S-004356.

970S-004356.

970S-004356.
                                                                                                                                                                                                                                                                                                                                                                                      97US-0043670.
97US-0043671.
97US-0043672.
97US-0043674.
                                                                                                 97US-0047598
97US-0047599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97US-0040334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97us-0040333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98WO-US04493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3-0040162.
3-0040163.
```

```
08-JUL-1997
16-JUL-1997
18-AUG-1997
22-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23-MAY-1997;
23-MAY-1997;
06-JUN-1997;
06-JUN-1997;
                                                                                                                                                                                                                                                           (HUMA-) HUMAN GENOME SCI INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13-JUN-1997
                                                                                                                                                                                                                                                                               97US-0057650.
97US-0057669.
97US-0057761.
97US-0058785.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   97US-0056872
97US-0056874
97US-0056875
97US-0056876
97US-0056877
97US-0056878
97US-0056878
97US-0056880
97US-0056881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97US-0056637.
97US-0056662.
97US-0056664.
97US-0056845.
97US-0056862.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         97US-0056630.
97US-0056631.
97US-0056632.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97US-0051926.
97US-0052874.
97US-0055724.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97US-0047632
97US-0047633
                                                                                                                                                                                                                                                                                                                                                  s-0056894.
s-0056903.
s-0056908.
                                                                                                                                                                                                                                                                                                                                                                                                                       S-0056884.
S-0056886.
S-0056887.
                                                                                                                                                                                                                                                                                                                                                                                 s-0056892.
s-0056893.
                                                                                                                                                                                                                                                                                                                                                                                                    3-0056888.
3-0056889.
                                                                                                                                                                                                                                                                                                                       -0056911
                                                                                                                                                                                                                                                                                                                               -0056910
                                                                                                                                                                                                                                                                                                                                         -0056909
```

Bednarik DP, Brewer LA, Carter KC, Duan R, Ebner R, Endress Feng P, Ferrie AM, Fischer CL, Florence KA, Greene JM, Hu J Kyaw H, Lafleur DW, Li Y, Moore PA, Ni J, Olsen HS, Rosen Ruben SM, Shi Y, Soppet DR, Young PE, Yu GL, Zeng Z; Endress GA;

WPI; 1998-506364/43. P-PSDB; AAW74777.

New isolated human genes and the secreted polypeptide(s) they encode - useful for diagnosis and treatment of e.g. cancers, neurological disorders, immune diseases, inflammation or blood disorders

Claim 1; Page 279-280; 721pp; English.

This sequence represents a nucleic acid molecule designated Gene 47 from the human cDNA clone HGGAV75 (deposited as clone ATCC 97889 and ATCC 209045) which encodes a secreted human protein. The gene can be used to generate fusion proteins by linking to the gene to a human immunoglobulin FC portion (e.g. AAV59502) for increasing the stability of the fused protein as compared to the human protein only.

The invention relates to 186 novel genes and their fragments (nucleic acid sequences: AAV59511-V59812; amino acid sequences AAV74731-W75026) which are useful for preventing, treating or ameliorating medical conditions e.g. by protein or gene therapy. Also, pathological conditions can be diagnosed by determining the amount of the new polypeptides in a

```
9999988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                             QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                   뮹
                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                       ρy
                                                                                                                                                                                                                                                       B
                                                   Q
                                                                                  뫄
                                                                                                         δã
                                                                                                                                       뮹
                                                                                                                                                                 δÃ
                                                                                                                                                                                               Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sample or by determining the presence of mutations in the new polynucleotides. Specific uses are described for each of the 186 polynucleotides, based on which tissues they are most highly expressed in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1220 BP; 382 A; 207 C; 258 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (see AAV59511 for described uses).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             242
                                                                                                                                                                                                                                                                                                                                                                                                 482
                                                                                                                                                                                                                                                                                                                                                                                                                            462
                                                                                                                                                                                                                                                                                                                                                                                                                                                         422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
es 1155; Conserv
                                                                                                                                                                                                                                                                                   602
                                                                                                                                                                                                                                                                                                                582
                                                                                                                                                                                                702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N
                                                                                                                                          762
                                                                                                                                                                     722
901 cagataaggtgagagtaatgactaactccaaagatggcttcactgaagaaaaggcatttt 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gggaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgga 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gagaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgga 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ctgataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gtgagattcacttcaaagtgaaaatgacaacatctcaagaaactcaaagaatcatact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gtgagattcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcatact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            \verb|acttgggggataagaaggtgaatatattaaactcaaagtcattggacaggatagca|\\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              acttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ctgataatcatactccaaaagaactgggaatggaagaagaagatgtgattgaagtttatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 attattgtttgttttcattgtgctgatttttggttgatcaagcctcagtccccttcatatt
                                                                                                                                                                                                                                                                                                                                                                     aaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcattattc
                                                                                                                                                                                                                                                                                                                                                                                  aaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcattattc
                                                                                                                                                                                                                                                                                                                                                                                                                         tomatccttttttatttttaaaaatagttcttttgtaatgtggtgttcaaaacggaattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                   tcaatccttttttatttttaaaaatagttcttttgtaatgtggtgttcaaaacggaattg
                                                                                                                                                                                                                                                                      accctctcctttttaaaaattacgtgtgcacagagaggtcacctttttcaggacattgca
                                                                                                                                                                                                                                                                                                             attattgtttgttttcattgtgctgatttttggtgatcaagcctcagtccccttcatatt
                                                                                                                                         attggccctgatgttctagcatgtgattacttcactcctggactgtgactttcagtggga
                                                                                                                                                      attggccotgatgttc-agcatgtgattacttcactcctggactgtgactttcagtggga
                                                                                                                                                                                             ttttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttcca
                                                                                                                                                                                                            ttttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttcca
                                                                                                                                                                                                                                                     {\tt accctctcctttttaaaaattacgtgtgcacagagaggtcaccttttcaggacattgca}
                                                                                                cttttaaaatttgagggtctggaccaaaagaagaggaatatcaggttgaagtcaagatga
                                          cttttaaaatttgagggtctggaccaaaagaaggaggaatatcaggttgaagtcaagatga
                                                                                 gatggaagtttttcagagaactgaactgtggaaaaatgacctttccttaacttgaagcta
                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   77.2%;
99.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 1131.2; DB 19; Length 1220; Pred. No. 9.7e-244;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                372 T; 1 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                461
                                                                                                                                                                                                                                                                701
                                                                                                                                                                                                                                                                                                                                                                                                                                       521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                         641
                                                                                                                                                                                                                                                                                            661
                                                                                                                                                                                                                                                                                                                                                                                 581
                                       941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2;
```

S

```
RESULT
AAV59722
ID AAV5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1002 aagattttttaaaaatcttgtcagaagatcccagaaaagttctaattttcattagcaatt 1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1141 ataaacaatatttgtcaaaa 1160
||||||||||||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1081 gtactttttggcctgggatatgggttttaaatggacattgtctgtaccagcttcattaaa 1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1062 aataaagctatacatgcagaaatgaatacaacagaacactgctcttttt-gattttattt 1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human; secreted protein; fusion protein; gene therapy; protein therapy; diagnosis; tissue; cancer; tumour; neurodegenerative disorder; leukaemia; developmental abnormality; foetal deficiency; blood; allergy; renal; ds; lumnune system; asthma; lymphocytic disease; brain; hepatic; lymphoma; inflammation; ischaemic shock; Alzheimer's disease; restenosis; AIDS; cognitive disorder; schizophrenia; prostate; obesity; osteoclast; thymus; osteoporosis; arthritis; testis; lung; thyroiditis; thyroid; digestion; osteoporosis; arthritis; testis; lung; thyroiditis; thyroid; digestion;
11-APR-1997
11-APR-1997
11-APR-1997
11-APR-1997
11-APR-1997
11-APR-1997
11-APR-1997
11-APR-1997
11-APR-1997
23-MAY-1997;
                                                                                                                                                                 11-APR-1997;
11-APR-1997;
11-APR-1997;
                                                                                                                                                                                                                               02-OCT-1997;
07-MAR-1997;
07-MAR-1997;
07-MAR-1997;
07-MAR-1997;
07-MAR-1997;
07-MAR-1997;
07-MAR-1997;
07-MAR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAV59722 standard; DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       961 aagattttttaaaaaatottgtcagaagatcccagaaaagttctaattttcattagcaatt 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            942 cagataaggtgagagtaatgactaactccaaagatggcttcactgaagaaaaggcatttt 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Human secreted protein gene 47 clone HOGAV75.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                       endocrine; metabolism; regulation; malabsorption; gastritis; neoplasm
                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                     06-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                        WO9839448-A2
                                                                                                                                                                                                        07-MAR-1997;
11-APR-1997;
                                                                                                                                                      11-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      aataaagotatacatgcagaaatgaatacaacagaacatgctcttttttagattttattt 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gtactttttggcctgggatatgggttttaaatggacattgtctgtaccagcttcattaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ataaacaatatttgtaaaaa 1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                               97US-0040333
                                                                                                                                                                                                                                                                            97US-0040162.
97US-0040163.
                                                                                                                                                                                                                                                                                                      97US-0040161.
                                                                                                                                                                                                                                                                                                                                                        98WO-US04493.
                                                                                                                                                                                                                                                 97US-0040334
                                                                             97US-0043669.
97US-0043670.
                                                                                                                     97US-0043576
97US-0043578
                                                                                                                                                                                                                        97US-0040626
                                                                                                                                                                                                                                      97US-0040336
                                                                                                      97US-0043580
                                                                                                                                              97US-0043569
                                                                97US-0043671
                                                                                                                                                            -0043568
```

```
22-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23-MAY-1997
23-MAY-1997
23-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23-MAY-1997;
23-MAY-1997;
23-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23-MAY-1997;
23-MAY-1997;
23-MAY-1997;
23-MAY-1997;
23-MAY-1997;
23-MAY-1997;
    97US-0057650.
97US-0057669.
97US-0057761.
                                                                                                                           97US-0056864.
97US-0056872.
97US-0056874.
97US-0056875.
97US-0056876.
97US-0056877.
97US-0056878.
97US-0056879.
97US-0056880.
97US-0056881.
97US-0056881.
                                                                            97US-
                            97US-0056910.
97US-0056911.
                                                   97US-0056908.
                                                                                                                                                                                                                                                     97US-0056636.
97US-0056637.
97US-0056662.
                                                                                                                                                                                                                                                                                                                                                                            970S-0047599.
970S-0047600.
970S-0047601.
970S-0047612.
970S-0047613.
970S-0047614.
970S-0047614.
970S-0047617.
                                                                                              97US-0056889
                                                                                                                                                                                                                                                                                                             97US-0049610.
97US-0051926.
97US-0052874.
                                                                                                     97US-0056888
                                                                                                                                                                                                                             97US-0056862
                                                                                                                                                                                                                                              97us-0056664
                                                                                                                                                                                                                                                                                                                                                     97US-0047633.
                                                                     -0056894
                                                                                                                                                                                                                                                                                                                                                                                                                                                      S-0047595.
S-0047596.
S-0047597.
                                                                                                                                                                                                                                                                                                                                             -0048964.
                                                                                                                                                                                                                                                                                                                                     -0048974
```

(HUMA-) HUMAN GENOME SCI INC.

Bednarik DP, Brewer LA, Carter KC, Duan R, Ebner R, Endress GA Feng P, Ferrie AM, Fischer CL, Florence KA, Greene JM, Hu JS; Kyaw H, Lafleur DW, Li Y, Moore PA, Ni J, Olsen HS, Rosen CA; Ruben SM, Shi Y, Soppet DR, Young PE, Yu GL, Zeng Z; Endress GA;

WPI; 1998-506364/43. AAW74938

New isolated human genes and the secreted polypeptide(s) they encode useful for diagnosis and treatment of e.g. cancers, neurological disorders, immune diseases, inflammation or blood disorders

Claim 1; Page 449; 721pp; English.

CC This sequence represents a nucleic acid molecule designated Gene 47 from CC 209043) which encodes a secreted human protein. The gene can be used to immunoglobulin Fc portion (e.g. AAV59502) for increasing the stability of CC The invention relates to 186 novel genes and their fragments (nucleic CC which are useful for preventing, treating or ameliorating medical CC which are useful for preventing, treating or ameliorating medical CC conditions e.g. by protein or gene therapy. Also, pathological CC conditions can be diagnosed by determining the amount of the new polynucleotides. Specific uses are described for each of the 186 CC (see AAV59511 for described uses).

Sequence 1196 BP; 360 A; 212 C; 259 G; 364 T; 1 other;

Query Match Best Local Similarity

76.6%; 99.7%;

Score 1122.8; Pred. No. 7.36

.3e-242;

DB 19; Length 1196;

В Qy D, Ş Ъ QΥ Ъ QY DЬ Qy 밁 QУ 밁 QY DЬ Qy Matches 1146; 468 482 aaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcattattc 348 ctgataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatc 302 ctgataatcatactccaaaagaactgggaatggaagaagaagatgtgattgaagtttatc 288 228 182 122 acttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagca 168 108 gaccccogggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg 62 48 2 gggaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgga 61 tcaatccttttttattttaaaaaatagttcttttgtaatgtggtgttcaaaacggaattg tcaatcottttttatttttaaaaatagttottttgtaatgtggtgttcaaaacggaattg 481 gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg acttgggggataagaaggaaggtgaatatattaaactcaaagtcattggacaggatagca gtgagattcacttcaaagtgaaaatgacaacatctcaagaaactcaaagaatcatact gaccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg 121 gagaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgga 107 Conservative 0; Mismatches 2; Indels 2; Gaps 2

ŋ

```
γΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DЬ
RESULT
AAA1621
ID AAA13
XX AAA13
AC AAA13
XX AAA13
DF 14-J
DT 14-J
XX Colc
KW Colc
KW dete
XX Home
XX 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1187
                                                                                                                                                                                        09-MAR-2000
                                                                                                                                                                                                                                              WO200012702-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAA16215 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              528
(FARB ) BAYER CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    acceteteetttttaaaaattacgtgtgcacagagaggtcacctttttcaggacattgca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             attattgtttgtttcattgtgctgatttttggtgatcaagcctcagtccccttcatatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcattattc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aataaagctatacatgcagaaatgaatacaacagaacactgctctttttagattttattt 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               aagattttttaaaaatcttgtcagaagatcccagaaaagttctaattttcattagcaatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cagataaggtgagagtaatgactaactccaaagatggcttcactgaagaaaaggcatttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cttttaaaatttgagggtctggaccaaaagaaggaggaatatcaggttgaagtcaagatga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gatggaagtttttcagagaactgaactgtggaaaaatgacctttccttaacttgaagcta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       accetetettttaaaaattaegtgtgcacagagaggtcacettttcaggacattgca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    attattgtttgttttcattgtgctgatttttggtgatcaagcctcagtccccttcatatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ataaacaata 1150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        aataaagctatacatgcagaaatgaatacaacagaacactgctcttttt-gattttattt 1126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aagattttttaaaaatcttgtcagaagatcccagaaaagttctaatttcattagcaatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cagataaggtgagagtaatgactaactccaaagatggcttcactgaagaaaaggcatttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cttttaaaatttgagggtctggaccaaaagaagaggaatatcaggttgaagtcaagatga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gatggaagtttttcagagaactgaactgtggaaaaatgacctttccttaacttgaagcta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ttttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ataaacaata
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                    colon
                                                                                                                                                                                                                                                                                                                                                   mutation;
                                                                                                                                                                                                                                                                                                                                                                                                                                    cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first
                                                                                                                                                                                                                                                                                                                                                                               detect; differential expression; human;
                                                     98US-0098639
99US-0117393
                                                                                                                                   99WO-US19424
                                                                                                                                                                                                                                                                                                                                                   non-invasive diagnostic
                                                                                                                                                                                                                                                                                                                                                                                                                                 differentially expressed nucleotide sequence #220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ВP
                                                                                                                                                                                                                                                                                                                                                        method;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 587
```

```
This sequence represents a human nucleotide sequence which is differentially expressed in colon cancer cells compared to the expression levels in normal cells. The nucleotide sequence can be used as a source of primers and probes. The nucleotide sequence is useful for determining the phenotype of a cell by detecting the differential expression of the sequence relative to a normal cell. The probes derived from the sequence can also be used to determine the phenotype of cells in a sample. Probes and antibodies which hybridise to the nucleotide sequence can also be used to determine the phenotype of a cell. The primers are useful for detecting a mutation in a test nucleotide sequence and also for detecting cancer, preferably colon cancer. Antibodies against the protein encoded by the nucleotide sequence can also be used in a method to detect colon cancer. The diagnostic method is non-invasive and accurate for diagnosing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Endege WO,
Catino TJ,
                                                                                                                                                                                                                                                                                                                                                                                       Novel
                                                                                                                                                                                                                                                                                                                                                                                     nucleic acids
                                                                                                                                                                                                                                                                                                                               16; Page 211-212; 345pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Steinmann F
Dwivedi P,
                                                                                                                                                                                                                                                                                                                                                                 treating
                                                                                                                                                                                                                                                                                                                                                                   and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KE, Astle JH,
, Ford DM, Lev
                                                                                                                                                                                                                                                                                                                                                                   proteins for identifying therapeutic agents diagnosing cancer, especially colon cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lewis ME,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Burgess
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Molino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ეე
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Carroll
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Monahan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ħ
```

Query Match Best Local Sequence 616 BP; 181 A; 109 32.0%; 95.2%; Score 469.2; Pred. No. 7.1e 0; Mismatches C; 149 G; 170 T; 7 DB 21; other; Length

colon cancer at an early stage.

Matches

555;

Conservative

Similarity

.1e-96;

20;

8;

Gaps

7;

Ş Qy В Qγ Db ρy В QΨ 밁 Ş 밁 Qy В Qy В δÃ 뫄 В 302 161 101 401 341 281 242 221 481 460 41 N gtgagattcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcatact acttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagca gagaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgga gggaaggatttgtaaaccccggagggaggttctgcttacccgaggccgctgctgtgcgga otcaatccttttttatttttaaaaatagttcttttgtaatgtggtgttcaaaacggaatt gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg acttgggggataagaaggaaggtgaatatattaaactcaaagtcattggacaggatagca gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg gtgagattcacttcaaagtgaaaatgacaacatctcaagaaactcaaagaatcatact gaaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcattatt cangaacaaaccgggggtcattcaacagtttanatattcttttta-atnntttcttttnc gaaaactggcaccccatct-tttgaaacatctggtaatttgaa-tctaatgctcatta-t ctcaatcctttttatttttaaaaaatagttcttttgtaatgtggtg-tcaaaacggaatt 100 181 121 61 575 540 518 459 400 360 340 301 241 220

Q

cattattgtttgttttcattgtgctgatttttggtgatcaagc

cattatggttggttt--cattggcngaattttggggatcaanc

616 583

```
AAT63339
IID AAT6
XX
AC AAT6
XX AAT6
XX Host
KW Host
Os Home
O
               Š
                                                                              밁
                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                Qy
                                                                                                                                                                                               Дb
                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cDNA clones (AAT63335-39) comprise partial sequences for human nucleoprotein interactor proteins NPI-2 to NPI-6, respectively. These are host cell proteins which interact with influenza virus nucleoprotein (NP) and which may be accessory proteins required for influenza virus replication. NPI-6 was identified as a novel protein sequence. NPI sequences were isolated by interactive trap selection using LexA-NP as bait and yeast transformed with an HeLa cDNA library. NPI-1 (see also AAT63334) and NPI-2 to NPI-6 cDNAs were cloned and analysed. The clones can be used to produce human NPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 372 BP; 121 A; 72 C; 97 G; 82 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Disclosure; Fig 11; 98pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    New isolated DNA which encodes viral interacting proteins - used in assays to isolate products for inhibiting viral protein binding which is required for infection, replication, assembly or release
249 acagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattgctgataa 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      proteins for use in identifying cpds. that inhibit viral
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Oneill R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (MOUN ) MOUNT SINAI MEDICAL CENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    06-OCT-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                06-OCT-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO9712967-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Host cell protein; NPI-6; nucleoprotein interactor influenza virus; replication; antiviral; virucide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human host cell protein NPI-6 partial cDNA clone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAT63339;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAT63339 standard; cDNA; 372
                                                                              181
                                                                                                                                                                                                                                                             129
                                                                                                                                      189
                                                                                                                                                                                  121 ggataagaaggaaggtgaatatattaaactcaaagtcattggacaggatagcagtgagat 180
                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                             9 atttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcggagaccccc 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6
                                                                                                                                                                                                                                                                                                      gggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgaggacttggg
                                                                                                 tcacttcaaagtgaaaatgacaaacacatctcaagaaactcaaagaatcatactgtcaaag
                                                                                                                                                                                                                 ggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagcagtgagat 188
                                                                                                                                                                                                                                                                                                                                     999tgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgaggacttggg 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1997-226211/20.
                                                                 tcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcatactgtcaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 370;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Palese P;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 95WO-US13044.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             95WO-US13044.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 368.8; DB 1
Pred. No. 1.7e-73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 18; Length 372;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                    240
                                                                                                                             248
                                                                                                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
```

QΥ

9 atttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcggagaccccc 68

Query Match
Best Local Similarity
Matches 370; Conserv

Conservative

0;

25.2%;

Score 368.8; Pred. No. 1. Mismatches

.8; .1.7e-73; 2; DB 22;

Indels Length 372;

0;

Gaps

0;

```
RESULT
AAF59399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Dр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                              indicated by a decrease in complex formation. The antiviral compounds that inhibit the interaction between a host protein (NS1-BP or NPI-1) and a viral protein (NS1) are useful for treating or inhibiting viral infection, preferably influenza and rhabdovirus infection, in humans. Antiviral compounds include peptides and antibodies. In particular compositions comprising a polypeptide containing an amino acid sequence corresponding to the NP-NLS domain of the influenza virus NP protein, which inhibits the specific interaction of the NPI-1 protein with the influenza virus NP protein are useful for treating or inhibiting influenza viral infection in humans. The present sequence represents a human host cell protein NPI-6 partial nucleotide sequence, which is used in the exemplification of the present invention.
                                                                                                                                                                                                                                                  The present invention describes a method (M1) for identifying a substance that inhibits the interaction of a viral protein (VP) with a host cell protein (HP). The method comprises: (a) contacting HP with VP in the presence of a test substance; and (b) detecting complex formation, where the ability of the test substance to inhibit HP/VP interaction is
Sequence 372 BP; 121 A; 72 C; 97 G; 82 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                Disclosure; Fig 11; 147pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                  Identifying a substance that inhibits the interaction between a viral protein and a host cell protein, useful for the discovery of new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               O'Neill R,
                                                                                                                                                                                                                                                                                                                                                                                                     antiviral compounds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2001-168816/17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Identification; antiviral; viral protein; viral replication; NP; viral infection; nucleoprotein; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (MOUN ) MOUNT SINAI SCHOOL MEDICINE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11-AUG-2000; 2000WO-US22257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15-FEB-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200111335-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human host cell protein NPI-6 partial nucleotide sequence SEQ ID NO:11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          02-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAF59399 standard; DNA; 372 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361 aacggggggtca 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         aacggggggtca 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tcatactccaaaagaactgggaatggaggaagatgtgattgaagtttatcaggaaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tcatactccaaaagaactgggaatggaaggaagttgtgattgaagtttatcaggaaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Harty R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99US-0148263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Palese PM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
```

SS

Sequence 425 BP; 135 A; 80 C; 115 G; 95 T; 0 other;

2;

```
RRESULT
AAT10375
ID AAT104
XX AAT104
XX AAT104
XX AAT104
XX TUNC
XX TUNC
XX TUNC
XX INTL
XX IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            몽
                                                  cDNA clone DD11 (AAT03735) was isolated by screening a human HeLd library using the human tumour necrosis factor receptor (TNN-R) p55 death domain (p55DD) as 'bair'. The fill length of the DD11 transcript is approx 1.2 kb. The protein encoded by cDNA DD11 interacts strongly with p55DD (amino acids 326-414) and also with human and mouse FAS intracellular domain. Such proteins may
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TNF-R p55IC/Fas-IC-binding protein DD11 cDNA clone
                                                                                                                                                                                                                                         Claim 18; Fig 12; 96pp; English.
                                                                                                                                                                                                                                                                                                  or HIV-infected cells
                                                                                                                                                                                                                                                                                                                        {\tt TNF-NGF} receptor superfamily intracellular domain-binding proteins useful for modulating receptor function, e.g. for treating tumours
                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1996-010930/01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             02-OCT-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11-MAY-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23-NOV-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           W09531544-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tumour necrosis factor receptor; TNF-R; p55IC; Fas-IC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26-MAR-1996 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAT03735 standard; cDNA; 425
                         be used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (YEDA ) YEDA RES & DEV CO LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11-MAY-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      intracellular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (WEIN/) WEINWURZEL H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aacggggggtca 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | tcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatcagggaaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 acagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattgctgataa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagcagtgagat 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgaggacttggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         atttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcggagaccccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aacggggggtca 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     acagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattgctgataa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcatactgtcaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ggataagaaggaaggtgaatatattaaactcaaagtcattggacaggatagcagtgagat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgaggacttggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tcatactccaaaagaactgggaatggaagaagttgtgattgaagtttatcaggaaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     modulate TNF-R function
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mett I,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   domain binding protein; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94IL-0111125.
94IL-0109632.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95WO-US05854.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Varfolomeev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ВР
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Wallach
                                                                                                                                                                                                                                                                                                                                                                                                                                                                D,
                                                                                 with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
```

```
RESULT
AAA43182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Dр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                         antiviral; antidiabetic; antiasthmatic; vulnerary; antiparkinsonian; antiviral; antidiabetic; antiasthmatic; vulnerary; antiparkinsonian; antiulcer; osteopathic; neuroprotective; noctropic; antipsoriatic; cerebroprotective; anticonvulsant; antidepressant; gene therapy; vaccine; autoimmune disorder; multiple sclerosis; allergic condition; insulin dependent diabetes; asthma; myeloid cell deficiency; ulcer; lymphoid cell deficiency; burn; osteoporosis; osteoarthritis; central nervous system disorder; Alzheimer's disease; stroke; parkinson's disease; Huntington's disease; coagulation disorder; haemophilla; thrombosis; inflammatory disorder; Crohn's disease;
                                                                                                                                                                                                                                                                                                                                                   expressed sequence tag; EST; probe; chemotactic; proliferative; immunomodulatory; haematopoietic; chemokinetic; analgesic; haemostatic; thrombolytic; antiinflammatory; cytostatic; antibacterial; antifungal;
                                                                                                                                                                                                                                                                                                                                                                                 Human; mouse; xenopus; rat; secreted expressed sequence tag; sEST; expressed sequence tag; EST; probe; chemotactic; proliferative;
                                                                                                                                                                                                                                                                                                                                                                                                                                Xenopus secreted expressed sequence tag SEQ ID NO:1922.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              21-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAA43182 standard;
            (GEMY ) GENETICS INST INC
                                           15-OCT-1998;
                                                                        15-OCT-1999;
                                                                                                      20-APR-2000
                                                                                                                                    WO200021990-A1
                                                                                                                                                                Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ڡ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gggaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgga 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tatcaggaacaaacggggggtcattcaacagttt 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tgtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaatt 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      agtgagattcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcatac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        agtgagattcacttcaaagtgaaaattgacaacacatctcaagaaactcaaagaatcatac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gacttgggggataagaaggaaggtgaatatattaaactcaaagtcattggacaggatagc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gacttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttccaactgag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaacctt-caactgag 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gagaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tgtcaaagacagggtgttccaatgaattcactcaggtttctctttgagggtcagagaatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                sp.
                                                                                                                                                                                              infection; depression; psoriasis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                           98US-0104435
                                                                         99WO-US24205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cDNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 345.2; DB 1
Pred. No. 3.3e-68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 425;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
```

```
RESULT 1
AAF58252/
ID AAF5
XX
AC AAF5
XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                     Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 anticonvulsant; and antidepressant. The SESTs can be used for gene therapy and in vaccines. The SESTs are useful as probes for the identification and isolation of full-length cDNAs and genomic DNA molecules which correspond to the SESTs. Proteins encoded by the SESTs are useful in assays for determining biological activity and raising antibodies. They may be useful for treatment of autoimmune disorders (multiple sclerosis, insulin dependent diabetes), allergic conditions (asthma), myeloid or lymphoid cell deficiencies, wounds, burns, ulcers, osteoporosis, osteoarthritis, central nervous system disorders (Alzheimer's, Parkinson's, Huntington's disease, stroke), coagulation disorders (haemophilia, thrombosis), inflammatory disorders (Crohn's disease), tumours, bacterial, fungal or viral infections, depression and psoriasis. AAA43420 to AAA43425 represent linker variants which are given
                                                     AAF58252;
                                                                                                                               AAF58252 standard; DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              chemotactic; proliferative; immunomodulatory; haematopoietic; chemokinetic; analgesic; haemostatic; thrombolytic; antiinflammatory; cytostatic; antibacterial; antifungal; antiviral; antidiabetic; cytostatic; antibacterial; antiulcer; osteopathic; neuroprotective; antiasthmatic; vulnerary; antiulcer; osteopathic; neuroprotective;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sequence tags (sESTs), isolated from human, mouse, xenopus and rat
tissue sources. The sESTs can have a range of activities depending on
the tissues they were isolated from. The activities include:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Isolated polynucleotides, and encoded proteins, comprising secreted expressed sequence tags (sESTs), useful for treating various disorders such as autoimmune, infectious, and central nervous system disorders -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 335 BP; 117 A; 61 C; 86 G; 71 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nootropic; antiparkinsonian; antipsoriatic; cerebroprotective;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAA41261 to AAA43419 represent specifically claimed secreted expressed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Jacobs K,
Merberg D,
                                                                                                                                                                                                                                                                                                                               324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                         ggtc 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        accgtcatcatgtctgaccaggaggcaaaaccttcaactgaggacttgggggataagaag 138
                                                                                                                                                                                                                                                                                                                           ggtc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cctaaggagctcggaatggaggaagaggatgttattgaagtttatcaggaacagactgtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gttccaatgaattctctcaggtttttgtttgaagggcaaagaatctcagatcaccagact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gttccaatgaattcactcaggtttctctttgagggtcagagaaattgctgataatcatact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               aaggtagagatgacaacgcatctcaaaaagctgaaagagtcatactgtcagagacagggc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gatggagggattatatcaaactcaaagtcattggacaggacagcagtgaaattcacttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ca---aggtgaatatattaaactcaaagtcattggacaggatagcagtgagattcacttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              acagtgagcatgtctgatcaggaagcgaaaccatctagcgaggatctaggagacaaaaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1; Page 559; 618pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                    327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    мссоу лм,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Treacy M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LaVallie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Isolated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 200; DB 21;
Pred. No. 8.6e-36;
0; Mismatches 55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ER,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Collins-Racie LA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 335;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Evans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ċ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1;
                                                                                  DЬ
                                                                                                                                                       Q
                                                                                                                                                                                                                                         Db
                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                 Dр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              \begin{array}{c} \mathsf{X} \times \mathsf{C} \times \mathsf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
        1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26-JUL-1999;
17-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-FEB-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                  435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Umek RM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic
                                                                                                                                                                                                                                             495
                                                                                                                                                                                                                                                                                                                           934
                                                                                                                                                                                                                                                                                                                                                                                                     555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
gaacactgctctttttagattttatttgtactttttggcctgggatatgggttttaaatg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10;
```

đ

```
acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and single-nucleotide polymorphisms, e.g. for genotyping, monitoring gene expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The present invention relates to a composition comprising
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Example 6; Page 127; 159pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a single surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  hybridization assays,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nucleic acids containing electron-transfer group, useful as labels i hybridization assays, e.g. for genotyping, allowing repeat analyses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2001-159728/16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 936 BP; 4 A; 139 C; 10 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (CLIN-) CLINICAL MICRO SENSORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    26-JUL-2000; 2000WO-US20476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200107665-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Electron-transfer group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Oligonucleotide D1835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24-APR-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         actcctggactgtgactttcagtgggagatggaagtttttcagagaactgaactgtggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ШИМИМИМИМИМИМИМИМИМИМИМИМИМИМИМИМИТ AAGCWMWMWMWMWMWWWWW
                                                          gaaaagttctaattttcattagcaattaataaagctatacatgcagaaatgaatacaaca
                                                                                                               atggcttcactgaagaaaaggcattttaagatttttaaaaaatcttgtcagaagatccca
                                                                                                                                                                                          aggaatatcaggttgaagtcaagatgacagataaggtgagagtaatgactaactccaaag
                                                                                                                                                                                                                                                                                                      aaatgacctttccttaacttgaagctacttttaaaatttgagggtctggaccaaaagaag 873
                                                                                                                                                                                                                                                                                                                                                                                                                              expression; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-0190259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9908-0145695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11.1%;
1.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ETM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 163;
Pred. No. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mismatch;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             776 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2e-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 22; Length 936;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    264; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                             436
                                                                                                                                                                                                                               933
1113
                                  376
                                                                                                                                                      993
                                                                                                                                                                                                                                                                     556
                                                                                                                                                                                                                                                                                                                                                                                     813
                                                                                                                                                                                                                                                                                                                                                                                                                              676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             693
                                                                                                                                                                                                                                                                                                                                              616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
```

```
RESULT 11
AAAF582
XX
XX
AAF582
AC
AAF582
AC
AAF582
AC
AAF582
XX
AC
AAF582
AC
AAF82
A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1114 gacattgtctgtaccagcttcattaaaataaacaatatttgtcaaaaatcgtactaatgc 1173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oligonucleotide D1875.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAF58254 standard; DNA; 936 BP
                                                          The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping, monitoring gene expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24-APR-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200107665-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Electron-transfer group; ETM; mismatch; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   195
   Sequence 936 BP; 4 A; 144 C; 7 G;
                                                                                                                                                                                                                                                                                                                                                                         Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17-MAR-2000; 2000US-0190259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26-JUL-2000; 2000WO-US20476
                                                                                                                                                                                                                                                                                  Example 6; Page 127; 159pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (CLIN-) CLINICAL MICRO SENSORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      МИМИМИМИМИМИ 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tgcatatttgata 1426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        acaatacctttttaatactcagtgttctgttttttttaaaaacttgatattcccgtatgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   atactggaaattgcacatggtacaaattttttcttcattactgtacagggatgatgttaa 1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ttattttattttaattgtatagaaagaaaaaatgcctaaaataaggttttcttgcataa 1233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2001-159728/16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  expression;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99US-0145695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SS
      5 T; 776 other
```

```
RESULT 12
AAF58257/c
ID AAF582
XX
AAF582
XZ
AC AAF582
XZ
DT 24-APR
XX
DE Oligon
XX
KW Electr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                            밁
                                                                                                                                                                                                                 Qγ
                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                     20
                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                         Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 11.1%; Score 163; DB 22; Length 9 Best Local Similarity 1.3%; Pred. No. 2.2e-27; Matches 10; Conservative 519; Mismatches 264; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                  1054
                                                                                                                                                                                                                                                                                                           1234
                                                                                                                                                                                                                                                                                                                                                        1174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Electron-transfer group; ETM; mismatch; genotyping;
                      Oligonucleotide D1954
                                                                    AAF58257;
                                                                                          AAF58257 standard; DNA; 936
                                                                                                                                                                                                                                                               1294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            694
                                              24-APR-2001
                                                                                                                                                                        1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               754
                                                                                                                                                                                                                                                                                                                                                                                                                            375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      874
                                                                                                                                                15 WWWWWWWWWWWW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                aaatgacctttccttaacttgaagctacttttaaaatttgagggtctggaccaaaagaag 873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           actcctggactgtgactttcagtgggagatggaagtttttcagagaactgaactgtggaa 813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     caatgcaagtgttcataatgactttccaattggccctgatgttcagcatgtgattacttc 753
                                                                                                                                                                       tgcatatttgata 1426
                                                                                                                                                                                                                 acaatacctttttaatactcagtgttctgttttttttaaaaacttgatattcccgtatgg 1413
                                                                                                                                                                                                                                                                                                         atactggaaattgcacatggtacaaattttttcttcattactgtacagggatgatgttaa 1293
                                                                                                                                                                                                                                                                                                                                                     ttattttattttaattgtatagaaagaaaaaaatgcctaaaataaggttttcttgcataa 1233
                                                                                                                                                                                                                                                                                                                                                                                                   gacattgtctgtaccagcttcattaaaataaacaatatttgtcaaaaatcgtactaatgc 1173
                                                                                                                                                                                                                                                                                                                                                                                                                                              gaacactgctctttttagattttatttgtactttttggcctgggatatgggttttaaatg 1113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gaaaagttctaattttcattagcaattaataaagctatacatgcagaaatgaatacaaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     atggcttcactgaagaaaaggcattttaagattttttaaaaaatcttgtcagaagatccca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                aggaatatcaggttgaagtcaagatgacagataaggtgagagtaatgactaactccaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 22; Length 936;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           376
```

gene expression;

SS

```
Ş
                                      В
                                                             Ş
                                                                                                         QY
                                                                                     밁
                                                                                                                                   В
                                                                                                                                                         Ş
                                                                                                                                                                                   밁
                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                 Вþ
                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                              Ъ
                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                  Ω
                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 936 BP; 5 A; 142 C; 7 G; 6 T; 776 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        monitoring gene expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on a single surface.
                                        375
                                                                                                                                                                                                                                                                                675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Example 6; Page 127; 159pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a single surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2001-159728/16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (CLIN-) CLINICAL MICRO SENSORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26-JUL-2000; 2000WO-US20476.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO200107665-A2
                                                                                                                                                                                                                                                                                                                                              694 caatgcaagtgttcataatgactttccaattggccctgatgttcagcatgtgattacttc 753
                                                                                                                                                                                                                                                                                                                                                                                           17-MAR-2000; 2000US-0190259
                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               single-nucleotide polymorphisms, e.g. for genotyping
                                 gaacactgctctttttagattttatttgtactttttggcctgggatatgggttttaaatg
                                                                                                     gaaaagttctaattttcattagcaattaataaagctatacatgcagaaatgaatacaaca 1053
                                                                                                                                                   atggcttcactgaagaaaaggcattttaagattttttaaaaaatcttgtcagaagatccca 993
                                                                                                                                                                                                                                                                                                                        aggaatatcaggttgaagtcaagatgacagataaggtgagagtaatgactaactccaaag 933
                                                                                                                                                                                                                            aaatgacctttccttaacttgaagctacttttaaaatttgagggtctggaccaaaagaag 873
                                                                                                                                                                                                                                                                                                 actcctggactgtgactttcagtgggagatggaagtttttcagagaactgaactgtggaa 813
                                                                                                                                                                                                                                                                           , o.t
                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative 519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0145695
                                                                                                                                                                                                                                                                                                                                                                                                                                  11.1%; Scor
1.3%; Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 163;
                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                   No.
                                                                                                                                                                                                                                                                                                                                                                                                                                  . 2e-27
                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 22; Length 936;
                                                                                                                                                                                                                                                                                                                                                                                                                        264;
                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                376
                                                                                                                                                                                                                                                                           616
                                                                                                                                                                                                                                                                                                                                                                                                                     0,
```

Matches Best Local Query Match

10;

Conservative 519;

1.3%;

11.1%; Score 163; DB 2 1.3%; Pred. No. 2.2e-27

DB 22; 264;

Length 936; Indels

0;

Gaps

0;

Mismatches

Similarity

```
RESULT 13
AAF58259/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вþ
  Sequence 936 BP; 6 A; 138 C; 8 G; 8 T;
                                  acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping, monitoring
                            monitoring gene expression.
                                                                                      The present invention relates to a composition comprising two nucleic
                                                                                                                Example 6; Page 128; 159pp; English.
                                                                                                                                            a single surface
                                                                                                                                                  Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses of
                                                                                                                                                                                             WPI; 2001-159728/16
                                                                                                                                                                                                                                                                       26-JUL-1999; 99US-0145695
17-MAR-2000; 2000US-0190259
                                                                                                                                                                                                                                                                                                            26-JUL-2000; 2000WO-US20476
                                                                                                                                                                                                                                                                                                                                     01-FEB-2001.
                                                                                                                                                                                                                                                                                                                                                             WO200107665-A2
                                                                                                                                                                                                                                                                                                                                                                                       Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                              gene expression; ss
                                                                                                                                                                                                                                                                                                                                                                                                                        Electron-transfer group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Oligonucleotide D2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAF58259;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAF58259 standard; DNA; 936 BP
                                                                                                                                                                                                                                               (CLIN-) CLINICAL MICRO SENSORS INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           24-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1414 tgcatatttgata 1426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15 WWWWWWWWWWWW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               acaataccttttaatactcagtgttctgttttttttaaaaacttgatattcccgtatgg 1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         atactggaaattgcacatggtacaaattttttcttcattactgtacagggatgatgttaa 1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ttattttattttaattgtatagaaagaaaaaatgcctaaaataaggttttcttgcataa 1233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                       ETM; mismatch; genotyping;
776 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             196
```

```
RESULT 14
AAF5862/C
ID AAF582
XX AAF582
AC AAF582
XX AAF582
DT 24-APR
XX DE Oligon
XX Electr
KW Electr
KW gene e
XX Synthe
XX Synthe
XX WO2001
                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                              Ъ
                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                 밁
                                                                                                                                                              Q
                                                                                                                                                                               밁
                                                                                                                                                                                             δĀ
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                              δõ
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
WO200107665-A2
                                       Electron-transfer group;
                                                        Oligonucleotide D2007
                                                                        24-APR-2001
                                                                                         AAF58262;
                                                                                                       AAF58262 standard;
                                                                                                                                                                                                                                                                                                                                                                                 435
                                                                                                                                                                                                                                                 195
                                                                                                                                                                                                                                                                                                                                                                                                                 495
                                                                                                                                                 15 мимимимимимими з
                                                                                                                                                                                75
                               expression;
                                                                                                                                                                                              acaatacctttttaatactcagtgttctgttttttttaaaaacttgatattcccgtatgg 1413
                                                                                                                                                                                                                                                          atactggaaattgcacatggtacaaattttttcttcattactgtacagggatgatgttaa
                                                                                                                                                                tgcatatttgata 1426
                                                                                                                                                                                                                                                                                               ttattttattttaattgtatagaaagaaaaaatgcctaaaataaggttttcttgcataa
                                                                                                                                                                                                                                                                                                                              gacattgtctgtaccagcttcattaaaataaacaatatttgtcaaaaatcgtactaatgc
                                                                                                                                                                                                                                                                                                                                                         atggcttcactgaagaaaaggcattttaagatttttaaaaaatcttgtcagaagatccca
                                                                                                                                                                                                                                                                                                                                                                                                                                                aggaatatcaggttgaagtcaagatgacagataaggtgagagtaatgactaactccaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              aaatgacctttccttaacttgaagctacttttaaaatttgagggtctggaccaaaagaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                        DNA;
                                                                                                        936
                                       ETM; mismatch; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                1053
                                                                                                                                                                                                                                                                                196
                                                                                                                                                                                                                                                                                                                256
                                                                                                                                                                                                                                                                                                                                                                                376
                                                                                                                                                                                                                                                                                                                                                                                                                436
                                                                                                                                                                                                                                                                                                                                                                                                                                                496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                676
```

```
Qy
                                            망
                                                                Q
                                                                                           뮹
                                                                                                               Ş
                                                                                                                                         В
                                                                                                                                                               Qy
                                                                                                                                                                                        밁
                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                     뫄
                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The present invention relates to a composition comprising two nuclei acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI;
                     1174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and single-nucleotide polymorphisms, \hat{\mathbf{e}}.\mathbf{g}. for genotyping, monitoring gene expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a single surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    26-JUL-1999;
17-MAR-2000;
                                                                                                                   1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 936 BP; 5 A; 139 C; 10 G; 6 T; 776 other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Example 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Umek
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (CLIN-) CLINICAL MICRO SENSORS INC
                                                                                                                                           435
                                                                                                                                                                                                                                                                                                                                       675
                                                                                                                                                                                                                                                                                                                                                                                                                                                          495
                                                                                                                                                                                                                934
                                                                                                                                                                                                                                                               874
                                                                                                                                                                                                                                                                                       615
                                                                                                                                                                                                                                                                                                               814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                              gaacactgctctttttagattttatttgtactttttggcctgggatatgggttttaaatg
                                                                                                                                                                                                              atggcttcactgaagaaaaggcattttaagatttttaaaaatcttgtcagaagatccca
                                                                                                                                                                                                                                                      2001-159728/16
                  ttattttattttaattgtatagaaagaaaaatgcctaaaataaggttttcttgcataa 1233
                                             gacattgtctgtaccagcttcattaaaataaacaatatttgtcaaaaatcgtactaatgc
                                                                                           gaaaagttctaattttcattagcaattaataaagctatacatgcagaaatgaatacaaca
                                                                                                                                                                                                                                        aaatgacctttccttaacttgaagctacttttaaaatttgagggtctggaccaaaagaag
                                                                                                                                                                                                                                                                                                                                       actcctggactgtgactttcagtgggagatggaagtttttcagagaactgaactgtggaa
                                                                                                                                                                                                                                                                                                                                                                                                            caatgcaagtgttcataatgactttccaattggccctgatgttcagcatgtgattacttc
                                                                                                                                                                                          10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Page 128; 159pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-0190259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000WO-US20476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0145695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11.1%; Score 163; DE 1.3%; Pred. No. 2.2e-tive 519; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 22;
1.2e-27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    264;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 936;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               two nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                   1113
                                                                                                                                                                   1053
196
                                                                                                                                                                                                                993
                                                                                                                                                                                                                                                                933
                                                                                                                                                                                                                                                                                                               873
                                                                                                                                                                                                                                                                                                                                                               813
                                                                                                                                                                                                                                                                                                                                                                                      676
                                                                                             316
                                                                                                                                           376
                                                                                                                                                                                                                                        496
                                                                                                                                                                                                                                                                                        556
                                                                                                                                                                                                                                                                                                                                       616
                                                                                                                                                                                                                                                                                                                                                                                                             753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
```

B

```
RESULT 15
AAF58255/c
ID AAF582
XX AAF582
XX AAF582
XX AAF582
XX AAF582
XX DI 24-APR
XX Oligon
XX Electr
KW gene e:
XX Synthe
XX Synthe
XX Synthe
XX Synthe
XX Gene e:
XX First Gene e:
XX WO2001
XX WO2001
XX WO2001
XX WO1-FEB
XX WO2001
XX WPI; 2
PR 26-JUL
PR 26-JUL
PR 26-JUL
PR 26-JUL
PR 26-JUL
XX WO1-FEB
XX WO1-FEB
XX WO1-FEB
XX WO1-FEB
XX WD1; 2
XX WD1; 
   Š
                                                                ₽
                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                 The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping, monitoring gene expression.
                                                                                                                                                                                                                                                                                                                                              Sequence 938 BP; 4 A; 144 C; 9 G; 5 T; 776 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Example 6; Page 127; 159pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a single surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2001-159728/16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                26-JUL-1999; 99US-0145695.
17-MAR-2000; 2000US-0190259.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-FEB-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200107665-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene expression;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Electron-transfer group; ETM; mismatch; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Oligonucleotide D1876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAF58255 standard; DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1414 tgcatatttgata 1426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1354 acaatacctttttaatactcagtgttctgtttttttttaaaaacttgatattcccgtatgg 1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1234 atactggamattgcacatggtacamattttttcttcattactgtacagggatgatgttma 1293
                                                                   795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26-JUL-2000; 2000WO-US20476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (CLIN-) CLINICAL MICRO SENSORS INC
694 caatgcaagtgttcataatgactttccaattggccctgatgttcagcatgtgattacttc 753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15 ишишишишишиш 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11.1%; Score 163; DB 22; llarity 1.3%; Pred. No. 2.2e-27; Conservative 519; Mismatches 264;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ВP
                                                                                                                                                                                                                                             Length 938;
                                                                                                                                                                                          Indels
                                                                                                                                                                                       0
                                                                                                                                                                                   Gaps
                                                                                                                                                                                       0,
```

```
Qy
                                       Дb
                                                          Qy
                                                                               Вb
                                                                                                 Qy
                                                                                                                       Db
                                                                                                                                          Qy
                                                                                                                                                                Дb
                                                                                                                                                                                   Qy
                                                                                                                                                                                                           DЬ
                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                    DЬ
                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                            DЬ
                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                      Дb
                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                        Вp
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ъ
                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                               Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                      1174
                   1414
                                                                                                                                            1234
                                                                                                                                                                                                                                1114
                                                                                                                                                                                                                                                                          1054
                                                                                                                                                                                                                                                                                               435
                                                                                                                                                                                                           315
                                                                                                                                                                                                                                                     375
                                                                                                                                                                                                                                                                                                                  994
                                                                                                                                                                                                                                                                                                                                                                                                    874
                                                                                                                                                                                                                                                                                                                                                                                                                         615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          735
15
MMMMMMMMMMM
                  tgcatatttgata 1426
                                                          acaatacctttttaatactcagtgttctgttttttttaaaaacttgatattcccgtatgg 1413
                                                                                           gacattgtctgtaccagcttcattaaaataaacaatatttgtcaaaaatcgtactaatgc 1173
                                                                                                                                                                                                                                                                      gaacactgctctttttagattttatttgtactttttggcctgggatatgggttttaaatg 111:
                                                                                                                                                                                                                                                                                             gaaaagttctaatttcattagcaattaataaagctatacatgcagaaatgaatacaaca 105
                                                                                                                                                                                                                                                                                                                                                   atggcttcactgaagaaaaggcattttaagattttttaaaaaatcttgtcagaagatccca
                                                                                                                                                                                                                                                                                                                                                                                          aggaatatcaggttgaagtcaagatgacagataaggtgagagtaatgactaactccaaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                actcctggactgtgactttcagtgggagatggaagtttttcagagaactgaactgtggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          atactggaaattgcacatggtacaaattttttcttcattactgtacagggatgatgttaa
                                                                                                                                                                 ttattttattttaattgtatagaaagaaaaaatgcctaaaataaggttttcttgcataa
                                                                                                                                                                                                                                                     aaatgacctttccttaacttgaagctacttttaaaatttgagggtctggaccaaaagaag
                                                                                                                                                                                      1233
                                                                                                                                                                                                                                                     316
                                        16
                                                                                                                                                                                                           256
                                                                                                                                                                                                                                                                                                                                       436
                                                                                                                                                                                                                                                                                                                                                            993
                                                                                                                                                                                                                                                                                                                                                                                                                         556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          676
                                                                                76
                                                                                                                                                                                                                                                                                               376
```

Search completed: August 15, 2001, 16:16:27 Job time: 3318 sec

				•			
1							
,							
						•	
							•

```
OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                   Result
                                                                                                                                                                                                                                                                       000
 000
                                                                      იი
                                                                                                             0000
                                                                                                                                                                                                   00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      on:
                                                                                                                                                                                                                                                                                                                                                                                                      No.
                                                                                                                                            8
10
11
12
12
13
14
15
16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                      Score
                                                                                                                                                                       44.8
44.4
44.2
43.4
42.6
42.6
42.6
                                                                                                                                                                                                                                                                                     77.6
77.6
50.6
48.4
46.6
                                                                                    40.4
40.2
40.2
                                                                                                                                                         41.
 39
                                                                                                                                                           .
œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Issued_Patents_NA:*
1: /cgn2_6/ptodata/2,
2: /cgn2_6/ptodata/2,
3: /cgn2_6/ptodata/2,
4: /cgn2_6/ptodata/2,
5: /cgn2_6/ptodata/2,
6: /cgn2_6/ptodata/2,
                                                                                                                                                                                                                                                                                                                                                                                                   Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           August 15, 2001, 15:19:49; Search time 86.75 Seconds (without alignments) 3197.012 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                   Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-484-964-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         324599 seqs, 94655562 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cgggaaggatttgtaaaccc.....gataaatgggcatgccagcc 1465
 /cgn2_6/ptodata/2/ina/5A_COMB.seq:*
/cgn2_6/ptodata/2/ina/5B_COMB.seq:*
/cgn2_6/ptodata/2/ina/6A_COMB.seq:*
/cgn2_6/ptodata/2/ina/6B_COMB.seq:*
/cgn2_6/ptodata/2/ina/BCTUS_COMB.seq:*
/cgn2_6/ptodata/2/ina/backfiles1.seq:*
                                                                                                                                                                                                                                7218
2110
19124
7218
87350
734
1667
1890
 1441
6243
1104
11104
11108
11582
11582
1482
1482
3933
3933
1198
1198
1198
11440
11440
1046
                                                                                                                                                                                                                                                                                                                                                                                                      DВ
2 US-09-213-768-1

2 US-08-853-974-2

3 US-08-853-974-2

3 US-08-8-23-463-14

4 US-08-232-463-14

5 US-08-247-8258-13

5 US-08-247-858-1

5 US-08-14-583-1

1 US-08-14-583-1

1 US-08-14-583-1

1 US-08-821-994-63

1 US-08-821-994-63

1 US-08-956-075-1

1 US-08-307-499-57

1 US-08-307-499-57

1 US-08-306-593-1

1 US-08-545-1968-10

1 US-08-545-1968-12

1 US-08-731-722-3

1 US-08-731-722-3

1 US-08-731-722-3

1 US-08-731-723-3

1 US-08-731-723-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUMMARIES
sequence 1, Appli
sequence 13, Appl
sequence 14, Appli
sequence 179, Appli
sequence 1, Appli
sequence 1, Appli
sequence 1, Appli
sequence 13, Appli
sequence 57, Appli
sequence 10, Appli
sequence 11, Appli
sequence 12, Appli
sequence 27, Appli
sequence 3, Appli
sequence 27, Appli
sequence 3, Appli
sequence 3, Appli
sequence 3, Appli
sequence 174, App
sequence 4, Appli
sequence 4, Appli
                                                                                                                                                                                                                                                                                                                                                                                                         Description
                                                                                                                                                                                                                                                                                                                                              Sequence :
                                                                                                                                                                                                                                                                                                                                                                Sequence 1, Sequence 2,
                                                                                                                                                                                                                                                                                                                                   Sequence 14, Appl
                                                                                                                                                                                                                                                                                                                                              1, Appli
2, Appli
2, Appli
2, Appli
```

dd VQ	Qy Db	da Vo	4d 60	Qy Db	Оу		RES US- S S G G G		O	00 0000000
0 ~	0 1					Query Best Match	Seque Seque Seque Seque Seque APPL TITL FILE CURR C		442	30 30 30 30 30 30 30 30 30
302 ctgataa         350 ctgataa	242 gtcaaag           290 gtcaaag	.82 gtgaga          30 gtgaga	122 acttggg           170 acttggg	62 gaccccc         110 gaccccc	2 gggaagg         50 gggaagg	Match Local Simi es 1384;	ESULT 1 S-09-213-768-1 S-09-213-768-1 S-09-213-768-1 S-09-213-768-1 Sequence 1, Application US/Patent No. 5985664 GEMERAL INFORMATION: APPLICANT: Brenda F. Baker APPLICANT: Lex M. Cowsert TITLE OF INVENTION: ANTISE FILE REFERENCE: RTS-0026 CURRENT APPLICATION NUMBER CURRENT FILING DATE: 1998 NUMBER OF SEQ ID NOS: 47 SEQ ID NO 1 LENGTH: 1514 TYPE: DNA ORGANISM: Homo sapiens FEATURE: NAME/KEY: CDS LOCATION: (136)(441) IS-09-213-768-1		თ თ <b>თ თ თ თ</b> თ	ധവധവധവധവ ജ.ജ.ജ.ജ.ജ.ജ.ജ.ജ. ച.ധ.ധ. ജ.ജ.ജ.ജ.ജ.ജ.ജ.ജ.ജ.ജ.ജ.ജ.ജ.ജ.ജ.ജ.ജ.
atcat       atcat	acag      acag	tcac	ggat 	999t      999t	attt	larity Conser	Licat FIGN: FIGN: FIGN: FIGN: FIGN: FIGN: DATE DATE DATE DATE DATE			
actccaa         actccaa	ggtgttc         ggtgttc	caa.	aagaagci        aagaaggi	gaagcca        gaagcca	gtaaacccc           gtaaacccc	87. ty 94. ervative	ion US/0  Baker Cowsert ANTISEN -00216 1 NUMBER: 1: 1998-1 1: 1998-1 05: 47 OS: 47		5718 5718 5718 5718 5852 1183 1332	240 1356 2447 2989 4032 4032 4032 4032 4032 4358 19124 19124 19124 1147
aaga       aaga	caat       caat	tga 	gcaaggtga           gaaggtga	accgt       accgt	99  -  99	1 60 40 40	92] SE U: 2-:			144271111111111111111111111111111111111
actg        actg	gaat      gaat	.g = .g	2 <u> </u>	catca        catca	agcga       agcga	Sco Pre 0;	376 MOI 7	AL		US-08-6 US-09-0 US-09-0 US-08-1 US-08-1 US-08-1 US-08-0 US-08-0 US-08-0 US-08-0 US-08-0
iggaats         ggaats	tcactc        tcactc	aac;	tatatt         tatatt	tgta      tgta	ggtt 	re 12 d. No Misma	8 JULATION 1/213,76	LIGNMENT	9-265- 9-265- 9-266- 7-867- 8-731- 9-057-	628-417-6 675-816-8 014-969-1 -64-1 -107-748-3 -107-748-3 -245-809-4 -292-01385- -3675-816-7 -487-8268- -146-421-3 -665-716-1
.ggagga        .ggagga	aggtt       aggtt	catct	caaacto	tgacca       tgacca	ctgctt        ctgctt	86.6; . 0; tches	58 OF S	STN		
jaagaag         jaagaag	tetet       tetet	aaga      aaga	3aag 	ggagg       ggagg	tacccgas            tacccgas	DB 74	ENTR		,	4 س ني آه س
atgt      atgt	ttgag []]] [ttgag	aact      aact	tcatt        tcatt	jcaaaa       jcaaaa	9 – 3	2; Len	IN EXP			
.gattga        .gattga	jggtca         ggtca	baaagaa        baaagaa	tggaca        tggaca	haaccttc	jeegetge          jeegetge	Length indels	PRESSI		seq seq seq seq seq	Sequents Seq
agttt        agttt	gagaa       gagaa	tcat      tcat	ggat       ggat	aactga        aactga	tgtgc       tgtgc	1514; 13;	Ŏ N		uence uence uence uence uence	Sequence Sequence Patent No. Sequence Sequence Sequence Sequence Sequence Sequence Sequence
atc	ttg      ttg	act 	agca       agca	99	gga         gga	Ga			182444	PH0110P0 100
361 409	0 4	241 289	181 229	121 169	61 109	ps			Appl Appl Appli Appli Appli Appli	Appli Appli Appli 5378464 Appli Appli Appli Appli Appli Appli Appli Appli Appli Appli

δÃ

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
1435 caatcatgttggataaatgggcatgccagcc 1465
                                       1424 gtgttctgttttttttaaaaacttgatattcccgtatggtgcatatttgatacaggtacc
                                                                1375 gtgttctgtttttttaaaaacttgatattcccgtatggtgcatattttgatacaggtacc 1434
                                                                                                                                                                                                                                                                                                                                                                                                                  1184 attaaaataaacaatatttgtcaaaaatcgtactaatgcttattttattttaattgtata
                                                                                                                                                                                                                                                                                                                    1244 gaaagaaaaaatgcctaaaataaggttttcttgcataaatactggaaattgcacatggt 1303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1075 ttatttgtactttttggcctgggatatgggttttaaatggacattgtctgtaccagcttc 1134
                                                                                                                                                                                                                                                                                                                                                                                       1195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          782 atggaagtttt-----tcagagaactgaactgtggaaaaatgacctttccttaacttga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          765 tgggagatggaagtttttgtggtgataaataagatcgaccaatgcaagtgttcataatga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        710 ttttcaggctttgttctagca----tgtgattacttcactcctggactgtgactttcag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       602 accetetettttaaaaattaegtgtgeacagagaggteacettttteaggacattgea 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tactgaagtgccttctgaatcaaggatttaattaaggccacaatacctttttaatactca
                                                                                                                                                           tactgaagtgeettetgaateaaggatttaattaaggeeacaataeetttttaataetea 1374
                                                                                                                                                                                                                         acaaattttttcttcattactgtacagggatgatgttaatgactttggagcactgaaagt 1363
                                                                                                                                                                                                                                                  acaaattttttcttcattactgtacagggatgatgttaatgactttggagcactgaaagt 1314
                                                                                                                                                                                                                                                                                                                                               gaaagaaaaaatgcctaaaataaggttttcttgcataaatactggaaattgcacatggt 1254
                                                                                                                                                                                                                                                                                                                                                                                                                                           attaaaataaacaatatttgtcaaaaatcgtactaatgcttattttattttaattgtata 1194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ttatttgtactttttggcctgggatatgggttttaaatggacattgtctgtaccagcttc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gcaattaataaagctatacatgcagaaatgaatacaacagaacactgctcttttt-gatt 1123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gcaattaataaagctatacatgcagaaatgaatacaacagaacactgctctttttagatt 1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cattttaagattttttaaaaaatcttgtcagaagatcccagaaaagttctaattttcatta 1064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cattttaagattttttaaaaatcttgtcagaagatcccagaaaagttctaattttcatta 1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      agatgacagataaggtgagagtaatgactaactccaaagatggcttcactgaagaaaagg 954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      agctacttttaaaattttgagggtctggaccaaaagaagaggaatatcaggttgaagtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 agctacttttaaaa-tttgagggtctggaccaaaagaagaggaatatcaggttgaagtca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ctttccaattggccctgacagagaactgaactgtggaaaaatgacctttccttaacttga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         attggccctgatgttcagcatgtgattacttcactcctggactgtgactttcagtgggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             agatgacagataaggtgagagtaatgactaactccaaagatggcttcactgaagaaaagg 1004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ttttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttcca 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   accctctccttttaaaaattacgtgtgcacagagaggtcacctttttcaggacattgca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          attattgtttgttttcattgtgctgatttttggtgatcaagcctcagtccccttcatatt 649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     attattgtttgttttcattgtgctgatttttggtgatcaagcctcagtccccttcatatt 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     aaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcattattc 589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tcaatccttttttattttttaaaaatagttcttttgtaatgtggtgttcaaaacggaattg 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                aaaactggcaccccatctctttgaaacatctggtaatttgaatttctagtgctcattattc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tcaatccttttttatttttaaaaaatagttcttttgtaatgtggtgttcaaaacggaattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1483
                                                                                                                                     1423
                                                                                                                                                                                                                                                                                                                                                                                                                       1243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              469
```

Ş Ъ δÃ Дb 20 B Qy Вþ Ωy 밁 Qy 밁 Ωy В QV 밁 Qy ₽ Qy 밁 Ş 밁 8 밁 Ş В Qγ 밁 Qy ₽ Š

US-09-172-988-2

```
RESULT
                                                                         Qy
                                                                                                           DЬ
                                                                                                                                      Ş
                                                                                                                                                                        Ъ
                                                                                                                                                                                                    QУ
                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                               US-08-853-974-2
                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 58.1
137; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-853-974-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 2 Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 473 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                             IMMEDIATE SOURCE:
LIBRARY: LUNGEI
CLONE: 2361410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEPHONE: 415-855-0555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
NAME: Billings, Lucy J.
REGISTRATION NUMBER: 36,749
REFERENCE/DOCKET NUMBER: PF-
                                   287 AACTGACACTCCAGCACAGCTGGAGATGGAGGACGAGGACACCATCGACGTGTTTC 342
                                                               306 taatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatc 361
                                                                                                           227
                                                                                                                                                                                                      186
                                                                                                                                                                                                                            107 GGGTGTGAAGACAGAGAATGACCACATCAACCTGAAGGTGGCCGGGCAGGACGGCTCCGT 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: Filed Herewith PRIOR APPLICATION DATA: APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM: MEDIUM TYPE: Diskett
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET: 3174 POTT
CITY: Palo Alto
STATE: CA
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQUENCES: 3

CORRECTORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Hillman, Jennifer L. APPLICANT: Shah, Purvi
                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
TOPOLOGY: lir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: FastSEQ for Windows Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                 aagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattgctga 305
                                                                                                                                                                                                                                                        99999ataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagcagtga 185
                                                                                                                                                               GGTGCAGTTCAAGATCAAGAGGCACACGCCGCTGAGCAAGCTGATGAAGGCCTACTGCGA
                                                                                                                                                                                             gattcacttcaaagtgaaaatgacaacatctcaagaaactcaaagaatcatactgtca 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2, Application US/08853974
5. 5840534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         473 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       E: Incyte Pharmaceuticals, 3174 Porter Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          415-845-4166
                                                                                                                                                                                                                                                                                                                                                                                                              LUNGFET 03
                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                           single
                                                                                                                                                                                                                                                                                                         5.3%; Score 77.6; DB 2; Length 473; 58.1%; Pred. No. 3e-10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US/08/853,974
                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PF-0289 US
                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.0
                                                                                                                                                                                                                                                                                             99;
                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                 226
```

```
US-09-172-988-2
                                                                                                                                                                                                                                                                                                                                                                  뫄
                                                                                               US-08-232-463-14
                                                                                                                                                                                              8
                                                                                                                                                                                                                                뮹
                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 2, Application US/09172988 Patent No. 6136955
                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity Matches 137; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                 Patent No. 5670367
GENERAL INFORMATION:
                                                               Sequence 14, Application US/08232463 Patent No. 5670367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: 415-845-4166 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: HUMAN SMT3-LIKE PROTEIN NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Hillman, Jennifer L. APPLICANT: Shah, Purvi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE/DOCKET NUMBER: PF
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415-855-0555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: FastSEQ for Windows Version CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Diskett
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
NAME: Billings, Lucy J.
REGISTRATION NUMBER: 36,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IMMEDIATE SOURCE:
LIBRARY: LUNGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                    107 GGGTGTGAAGACAGAGAATGACCACATCAACCTGAAGGTGGCCGGGCAGGACGGCTCCGT 166
                                                                                                                                                                                                                                                                                                                                                                                       126 gggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagcagtga 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET: 3174 Por CITY: Palo Alto
                                                                                                                                                                                   306 taatcatactccaaaagaactgggaatggaaggaagaagatgtgattgaagtttatc 361
                                                                                                                                                                                                                                                               246 aagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattgctga 305
                                                                                                                                                                                                                                                                                                 167 GGTGCAGTTCAAGATCAAGAGGCACACGCCGCTGAGCAAGCTGATGAAGGCCTACTGCGA 226
                                                                                                                                                                                                                                                                                                                                 186 gattcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcatactgtca 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER:
                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US/09/172,988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US/08/853,974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2361410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           473 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E: Incyte Pharmaceuticals, Inc.
3174 Porter Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LUNGFET 03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IBM Compatible
   FALKNER, F. G.
                 SCHEIFLINGER, F.
                                   DORNER,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 , Lucy J.
, 36,749
                                                                                                                                                                                                                                                                                                                                                                                                                                                       5.3%;
58.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sod
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PF-0289 US
                                                                                                                                                                                                                                                                                                                                                                                                                                         0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 77.6; DB 3; Length 473; Pred. No. 3e-10; 0; Mismatches 99; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
```

0;

밁

```
CLONE: pTZgpt-F1s
US-08-232-463-14
                                                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                                                        δõ
                                                                                                                                                                                               Qy
                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                       ρy
                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                     밁
                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 3.5%; Score 50.6; DB 1; Length 7218; Best Local Similarity 1.3%; Pred. No. 0.0035; Matches 5; Conservative 221; Mismatches 145; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEX: 899149
INFORMATION FOR SEQ ID NO: 14:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS NUMBER OF SEQUENCES: 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION DATA: APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELECOMMUNICATION INFORMATION: TELEPHONE: (703)836-9300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
LENGTH: 7218 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
                                                                                                                                                                                                                            IMMEDIATE SOURCE:
                                                                                                                                                                     1420 YYYYYYYYYY 1430
                                                                                                                                                                                                                                                                                                                449 ttcttttgtaatgtggtgttcaaaacggaattgaaaactggcaccccatctctttgaaac 508
                                                                                                                                                                                                                                                                                                                                                                          389 trtagatattotttttatttttttttttcttttccctcaatccttttttatttttaaaaatag 448
                                                                                                                                                                                             COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
                                                                               689 tcgaccaatgcaagtgttcataatgactttccaattggccctgatgttcagcatgtgatt 748
                                                                                                                                      REFERENCE/DOCKET NUMBER: 30472/114 IMMU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 22313-0299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                         749 acttcactcct 759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: BENT, Stephen A REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ٧A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1800 Diagonal Road, Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (703)683-4109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Foley & Lardner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                26-AUG-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EP 91 114 300.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US/08/232,463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US/07/935,313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29,768
                                                                                                                                                                                                                                                                                                                                                                                                               0;
```

```
GENERAL INFORMATION:
APPLICANT: Liu, Jin-Hao
APPLICANT: Cheng, Kuo-Joan
APPLICANT: Cheng, Kuo-Joan
APPLICANT: Cheng, Chia-Chieh
TITLE OF INVENTION: CELUILASE ENZYMES
FILE REFERENCE: 089.9/037001
CURRENT APPLICATION NUMBER: US/09/419,459
CURRENT FILING DATE: 1999-10-15
NUMBER OF SEQ ID NOS: 10
SOPTWARE: FASTSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                     US-08-487-826B-13/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; FEATURE:
; NAME/KEY: CDS
; LOCATION: (3)...(1749)
US-09-419-459-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-419-459-1
                                                                                                                                                                                                                                                                              Sequence 13, Application US/08487826B Patent No. 5993827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
3.3%; Score 48.4; DB 4; Length 2110;
Best Local Similarity 47.4%; Pred. No. 0.0073;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQ ID NO 1
                                                                                                                                                                                                                                                             GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1, Application US/09419459 Patent No. 6222028
        APPLICANT: Su, X10-ZHOLL
APPLICANT: Wellems, Thomas E.
TITLE OF INVENTION: AND PLASMODIUM FALCIPARUM ERYTHROCYTE BINDING PROTEINS
TITLE OF INVENTION: AND PLASMODIUM FALCIPARUM ERYTHROCYTE BINDING PROTEINS
OF SEQUENCES: 45
                                                                                                                                                                APPLICANT: Sim, Kim L.
APPLICANT: Chitnis, Chetan
APPLICANT: Miller, Louis H.
APPLICANT: Peterson, David S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 2110
TYPE: DNA
ORGANISM: Piromyces rhizinflata
                                                                                                                                                                                                                                                                                                                                                                                                   2020 ataata 2025
                                                                                                                                                                                                                                                                                                                                                                                                                                          1250 atggta 1255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1960 aagcaaaaaaaagaatttaattaaaatcaagaatttttaaagatggaatatgtattttaa 2019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1190 gtatagaaagaaaaaatgcctaaaataaggttttcttgcataaatactggaaattgcac 1249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1130 gcttcattaaaataaacaatatttgtcaaaaatcgtactaatgcttattttattttaatt 1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1070 agattttatttgtactttttggcctgggatatgggttttaaatggacattgtctgtacca 1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1780 aatgaaaaattatttaaaaaaaaataaaatagaaaatttatatacacatatttctaata 1839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1010 cattagcaattaataaagctatacatgcagaaatgaatacaacagaacactgctcttttt 1069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET: 620 Newport Center Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       950 aaaggcattttaagattttttaaaaaatcttgtcagaagatcccagaaaagttctaatttt 1009
                                                                                                                                                                                                                                                      INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches 161; Indels
16th Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
```

```
US-08-232-463-14/c
                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                 Ъ
                                                                                                                                                                                                                                                                                                                                                                                                             Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-487-826B-13
                                                                                                                                                                      Sequence 14, Application US/08232463 Patent No. 5670367 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 3.2%; Score 46.6; DB 2; Length 19124; Best Local Similarity 49.4%; Pred. No. 0.049; Matches 121; Conservative 0; Mismatches 124; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                 15616 AAATT 15612
                                                                                                                                                                                                                                                                                                                                      TELEFAX: (619) 235-0176
INFORMATION FOR SEQ ID NO: 13:
SEQUENCE CHARACTERISTICS:
LENGTH: 19124 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: DORNER, F.
APPLICANT: SCHEIFLINGER, F.
APPLICANT: FALKNER, F. G.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                 618 aaatt 622
                                                                                                                                                                                                                                                                                                                                                                                                                     438 tttaaaaatagttettttgtaatgtggtgttcaaaaeggaattgaaaaetggcaceecat 497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: CI
HYPOTHETICAL: NO
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: ISTACLSEN, Ned
REGISTRATION NUMBER: 29,655
REFERENCE/DOCKET NUMBER: NI
TELECOMMUNICATION INFORMATION:
TELECHONE: (619) 235-8550
                                                                                                                                                                                                                                                                                                                                                           558 attgtgctgatttttggtgatcaagcctcagtccccttcatattaccctctcctttttaa 617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDIUM TYPE: Floppy
                        CITY: Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
COUNTRY:
                                              STREET:
                                                           ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 19124 base pairs TYPE: nucleic acid STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 10
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY: UZIP: 92660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STATE: California
              ٧A
                                       1800 Diagonal Road,
                                                         Foley & Lardner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              E: Floppy disk
IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10-SEP-1993
ON: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               , Ned
ner: 29,655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US/08/487,826B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NIH121.001CP1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
```

ç

```
CLONE: pTZgpt-F1s
US-08-232-463-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                         US-08-781-891-79/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 3.1%; Score 46; DB 1; Length 7218; Best Local Similarity 2.7%; Pred. No. 0.046; Matches 10; Conservative 212; Mismatches 152; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: EP 91 114 300.6
FILLING DATE: 26-AUG-1991
ATTORNEY/AGENT INFORMATION:
NAME: BENT, Stephen A.
REGISTRATION NUMBER: 29,768
REFERENCE/DOCKET NUMBER: 30472/114 IMPLECOMMUNICATION INFORMATION:
TELEPHONE: (703)836-9300
TELEPHONE: (703)836-9300
Sequence 79, Application US/08781891
Patent No. 6090620
GENERAL INFORMATION:
APPLICANT: Fu, Ying-Hui
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO: 14:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: PAR PC POS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1088 RRRRRRRRRRRRR 1075
                                                                                                                                                                                                                                                                                                                                                                                                       184 gagattcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcatactgt 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               124 ttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagcagt 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                         304 gataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatcag 363
                                                                                                                                                                                                                                                                                                                                 244 caaagacagggtgttccaatgaattcactcaggtttctctttgagggtcagagaattgct 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: (703 TELEX: 899149
                                                                                                                                                                                     364 gaacaaacgggggg 377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     64 cccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgaggac 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4 gaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcggaga 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22313-0299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7218 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (703)683-4109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US/08/232,463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     us/07/935,313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         30472/114 IMMU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 1; Length 7218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
```

```
;; TOPOLOGY: US-08-781-891-79
                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                              ; Sequence 1, Application US/09014583 ; Patent No. 6140077
                                                                                                                                                        US-09-014-583-1
                                                                                                                                                                                                                                Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: (206) 682-6031 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           12134 GTGCAGTTTAAGATGAACAGCCACGCACCACCGCTTAGTAAACCAATGAAAGCCTATT 12075
                                                                                                                                                                                                                                                                                                                                                                                   12074 GTAAGGGGCACGGTTTGCCAATGAGGCAGATCAGGTTTCAATTTGACAGGCAGCCAATCA 12015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Schellenberg, Gerald D.
TITLE OF INVENTION: GENE AND GENE PRODUCTS RELATED TO
TITLE OF INVENTION: WERNER'S SYNDROME
                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                  11955 AGCAGCAGACATGGAG 11940
                                                                                                                                                                                                                                                                                                         12014 ATGAACCAGACATCTGCACATTTGGAAGT-GAGGCTTAAGACAAAACTGATGTGTTCC 11956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compati
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: 24
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION: 800
ATTORNEY/AGENT INFORMATION:
NAME: NO. 6090620tenburg Ph.D., Carol
REGISTRATION NUMBER: 39,317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
LENGTH: 87350 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
  APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           182 gigagaticacticaaagigaaaatgacaacacatcicaagaaactcaaagaatcatact 241
                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                 302 ctgataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatc 361
                                                                                                                                                                                                                                                                                                                                                                                                         242 gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg 301
                                                                                                                                                                                                                                                                  362 aggaacaaacgggggg 377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: FILING DATE: 27-DE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 y Match 3.1%; Score 44.8; DB Local Similarity 55.1%; Pred. No. 0.25; hes 108; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEPHONE:
                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98104-7092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mulligan, John T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Yu, Chang-En
Oshima, Junko
NAKAMURA, Takeshi
SUZUKI, Tadashi
TOKUDA, Junko
KATO, No. 6140077uo
SAKAI, Yasuyoshi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEED and BERRY LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27-DEC-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US/08/781,891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240052.419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 3; Length 87350;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               87; Indels
```

APPLICANT: MOCHIZUKI, Daisuke APPLICANT: TAKAHASHI, Hitoshi

INVENTION: METHOD FOR PRODUCING PHYTASE

TITLE

```
; Sequence 1, Application US/08485284A
; Patent No. 5750372
                                      US-08-485-284A-1
                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-014-583-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY: line
MOLECULE TYPE: D
ORIGINAL SOURCE:
                                                                                                                                                1223 tt 1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEFAX: (703) 836-2021
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                         1103 ggttttaaatggacattgtctgtaccagcttcattaaaataaacaatatttgtcaaaaat 1162
                                                                                                                                                                                                                                                                                                                                             1043 tgaatacaacagaacactgctctttttagattttatttgtacttttttggcctgggatatg 1102
                                                                                                            719 TT 720
                                                                                                                                                                    599 ATTTTTAAAATAATATCTTAATTAATTTAATTTTTACGAATATACAAATTTTAACGACTTT 658
                                                                                                                                                                                                                                                                                                             539. TATATAACATAGATACACAATTATTATTTATTATCATATTATTTTTTTAAAATATTGATT 598
                                                                                                                                                                                                                                                                                                                                                                                  479 AATTCTTTTAAATTCTATTTTAATTCTTTACTTTATCATAGGTTATCATAACAAT 538
                                                                                                                                                                                                                                                                                                                                                                                                          983 agaagatcccagaaaagttctaattttcattagcaattaataaagctatacatgcagaaa 1042
                                                                                                                                                                                                                                                                                                                                                                                                                                                        419 TAACTTATAAAAAATTTATATTTAAATGAATTAATTTCCTTTATTTTAATAATATCGTT 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          923 taactccaaagatggcttcactgaagaaaaggcattttaagatttttaaaaaatcttgtc 982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE: (703) 836-6620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: JP 200398/96 FILING DATE: 30-JUL-1996 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US/09/014,583
FILING DATE: 28-JAN-1998
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity 46.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEVELOPMENTAL STAGE: wild type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME: Teskin, Robin L. REGISTRATION NUMBER: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: Alexandria
STATE: Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22313-1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         734 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E: BURNS, DOANE, SWECKER & MATHIS, L.L.P. P.O. Box 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Candida boidinii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              United States
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  35,030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۳.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 44.4; DB 3; Length 734;
Pred. No. 0.045;
0; Mismatches 161; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                027066-013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps
```

0,

Qy 밁 δÃ В Qγ Вþ δÃ В Q

```
В
                                                  ρy
                                                                                         밁
                                                                                                                          γ
                                                                                                                                                               Ъ
                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                           Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-485-284A-1
                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEX: 6714627 CUSH INFORMATION FOR SEQ ID NO: 1:
1540 ATTTTTAAAATAATATCTTAATTAATTTATTTTACGAATATACAAATTTTAACGACTTT 1599
                                                                                                      1103 ggttttaaatggacattgtctgtaccagcttcattaaaataaacaatatttgtcaaaaat 1162
                                                                                                                                             1480 TATATAACATAGATACACAATTATTATTTATTATCATATTATTTTTTAAAATATTGATT 1539
                                                                                                                                                                                1043 tgaatacaacagaacactgctctttttagattttatttgtacttttttggccttgggatatg 1102
                                                                                                                                                                                                                                                                                           1360 TAACTTATAAAAAATTTATATTTAAATGAATTAATTTCCTTTATTTTAATAATAATCGTT 1419
                                                                                                                                                                                                                   1420 AATTCTTTTAAATTCTATTTTATTTTAATTCTTTTATCATAGTTATCATATAACAAT 1479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY: unknown
MOLECULE TYPE: genomic DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE/DOCKET NUMBER: 21
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 861-3000
TELEPAX: (202) 822-0944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 28-FEB-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/025,416
FILING DATE: 01-MAR-1993
FILING DATE: 01-MAR-1993
                                                                                                                                                                                                                                                    983 agaagatcccagaaaagttctaattttcattagcaattaataaagctatacatgcagaaa 1042
                                                                                                                                                                                                                                                                                                                923 taactccaaagatggcttcactgaagaaaaggcattttaagattttttaaaaatcttgtc 982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
NAME: WHITE JR., PAUL E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: HATANAKA, HARUYO
TITLE OF INVENTION: NOVEL VECTOR HAVING PROMOTER THAT IS
TITLE OF INVENTION: INDUCIBLE BY METHANOL AND/OR GLYCEROL
NUMBER OF SEQUENCES: 18
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                    Watch 3.0%; Score 44.4; DB 1; Length 1667; Local Similarity 46.7%; Pred. No. 0.063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: JP 43361/1992 FILING DATE: 28-FEB-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nucleic acid
EDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20005-3918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             D. C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1667 base pairs
                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1100 New York Avenue, N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SAKAI, YASUYOSHI
TANI, YOSHIKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KONDO, HIROTO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SHIBANO, YUJI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CUSHMAN DARBY & CUSHMAN, L.L.P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            07-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YOSHIKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US/08/485,284A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       32,011
                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches 161; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    217755/FPS38209US
                                                                                                                                                                                                                                                                                                                                                                   0; Gaps
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5312912-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE OF INVENTION: PROCEDURES AND REGULATORY DNA SEQUENCES; FOR GENETICALLY ENGINEERING DISEASE RESISTANCE AND OTHER; INDUCIBLE TRAITS IN PLANTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5312912-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; Patent No. 5312912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;SEQ ID NO:3:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DANIEL
                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 12
US-08-821-994-63/c
                                                                                                       FILE REFERENCE: PPD 50108

CURRENT APPLICATION NUMBER: US/08/821,994A

CURRENT FILING DATE: 1997-03-22

EARLIER APPLICATION NUMBER: PCT/GB97/00729

EARLIER FILING DATE: 1997-03-18

EARLIER APPLICATION NUMBER: GB 9606062.9

EARLIER FILING DATE: 1996-03-22

NUMBER OF SEO ID NOS: 89
; ORGANISM: Brassica napus US-08-821-994-63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3.0%;
Best Local Similarity 47.5%;
Matches 121; Conservative
                                                                                                                                                                                                                                                                                                                                                              Sequence 63, Application US/08821994A Patent No. 6228643
                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                          SEQ ID NO 63
                                                                                                                                                                                                                                                                 APPLICANT: Greenland, Andrew APPLICANT: Thomas, Didier RP APPLICANT: Jepson, Ian TITLE OF INVENTION: Promoters
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1223 tt 1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES: 9
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/
FILING DATE: 13-JUN-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1660 TT 1661
                                                                                               SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: HADWIGER, LEE A.; CHIANG, CHIN C.; HOROVITZ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1208 gcctaaaataaggttttcttgcataaatactggaaatttgcacatggtacaaattttttct 1267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1328 totgaatcaaggatttaattaaggocacaatacotttttaatactcagtgttctgttttt 1387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1268 tcattactgtacagggatgatgttaatgactttggagcactgaaagttactgaagtgcct 1327
                                      TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1388 tttaaaaacttgata 1402
                                                      LENGTH: 1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               285 taaaagaagtaagtannnnnntataattaaaatattttataaatcggataactcatcggt 344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   465 ttaactaatttgaga 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    405 ttaaattaaatttaatatttttggagataaaacattagtattaactaaaattctatacaa 464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 1890
                                                                                           PatentIn Ver. 2.1
                                                                                                                                                                                                                                                                                                                         Greenland, Andrew J
                                                                                                                                                                                                                                                                       Promoters
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          us/07/393,301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatches 134; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 44.2; DB 6; Length 1890; pred. No. 0.074;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Gaps
```

```
망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-056-075-1/c
                                                                                                                                                 NAME/KEY: misc_feature;
LOCATION: 3770.4013;
OTHER INFORMATION: /note= "RP4 origin of DNA transfer (oriT) from;
OTHER INFORMATION: plasmid RP4"
US-09-056-075-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 1, Application US/09056075 Patent No. 5955368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                             Query Match 2.9%; Score 42.6; DB 2; Best Local Similarity 48.9%; Pred. No. 0.29; Matches 114; Conservative 0; Mismatches 119;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: 608-251-9166
INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1306 AAATGATATTGACCAACATAGAGATTTATACAGATTA 1270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1366 ATCATTTTATTATATTCTCTTAATACATAATCAAGCCAAAGCAAATATTCTTTGAATG 1307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Bradshaw, Marite APPLICANT: Rood, Julian TITLE OF INVENTION: Express: TITLE OF INVENTION: Species
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 449 ttcttttgtaatgtggtgttcaaaacggaattgaaaactggcaccccatctctttgaaac 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/056,075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          509 atctggtaatttgaattctagtgctcattattcatta 545
                                                                                                                                                                                                                                                                                                                                                                          TELECOMMUNICATION INFORMATION:
TELEPHONE: 608-251-5000
TELEFAX: 608-251-9166
                                                                                                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
NAME: Seay, Nicholas J.
REGISTRATION NUMBER: 273
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
LENGTH: 6243 base pair
MOLECULE TYPE:
                                                                                                                                                                                                                                          FEATURE:
                COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY: Madison
STATE: WI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ZIP: 53701-2113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                          TOPOLOGY:
                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86; Conservative
                                                                                                                                                                                                                                                                                                       nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 South Pinckney Street
                                                                                                                                                                                                                                                                                                                             6243 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bradshaw, Marite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Johnson, Eric A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Quarles & Brady
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Floppy disk
                                                                                                                                                                                                                                                          DNA (genomic)
                                                                                                                                                                                                                                                                                         double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         54.8%; Pred. No. 0.1; ative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Expression System for Clostridium
                                                                                                                                                                                                                                                                                                                                                                                                                                                   27386
                                                                                                                                                                                                                                                                                                                                                                                                                                    960296.95238
                                                                        Mismatches 119; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                71; Indels
                                                                                                         Length 6243;
                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                              Gaps
```

0,

```
US-08-307-499-57
          Best Local Similarity
                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-307-499-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       equeuc.
'atent No. 56513,...
GENERAL INFORMATION:
APPLICANT: Moyer, Richard W.
APPLICANT: Vi uela, Eladio
'PRITCANT: Gibbs, E.P.J.
'PRITCANT: Gibb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 57, Appl
Patent No. 565197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO: 57:
                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
LENGTH: 1104 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REGISTRATION NUMBER: 31,794
REFERENCE/DOCKET NUMBER: UF:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 904-375-8100
                                                                                                                                                                                                                                                   FEATURE:
                                                                                                                                                                                                                                                                                  MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/342,212
FILING DATE: 21-APR 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/908,241
FILING DATE: 1-JUL-1992
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES: 60
CORRESPONDENCE ADDRESS:
ADDRESSEE: David R. Saliwanchik
STREET: 2421 N.W. 41st Street, Suite A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY:
                                                                                                                                                                                 LOCATION:
                                                                                                                                                                                                                                                                                                                  TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                          STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: FILING DATE: 29-JUN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             564 ctgatttttggtgatcaagcctcagtccccttcatattaccctctccttttta 616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CITY: Gainesville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       444 aatagttottttgtaatgtggtgttcaaaacggaattgaaaactggcaccccatctcttt 503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                         nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  32606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Saliwanchik, David R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          904-372-5800
                                                                                                                                                                             287..832
                                                                                                                                                                                                                                                                                                           unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             U.S.A.
                                                                                                                                                                                                                                                                 DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29-JUN-1992
                                                                                                                                                                                                                                                                                                                                          double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Floppy disk
      2.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US 07/908,630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/08/307,499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 UF35.1.FWCC1
Score 42; DB 1; Length 1104; Pred. No. 0.21;
```

```
US-09-299-268-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3-09-222
Sequence 57, Apprant No. 6217882
                                    TELEFAX: 904-372-5800 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
   SEQUENCE CHARACTERISTICS:
LENGTH: 1104 base pair
                                                                    TELECOMMUNICATION INFORMATION: TELEPHONE: 904-375-8100
                                                                                                                                 ATTORNEY/AGENT INFORMATION:
NAME: Saliwanchik, David R.
                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: Use of Recombinant Swine Poxvirus as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1369 tactcagtgttctgtttt 1386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1249 catggtacaaatttttttcttcattactgtacagggatgatgttaatgactttggagcact 1308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1189 tgtatagaaagaaaaaatgoottaaaataaggttttottgoataaataotggaaattgoa 1248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REGISTRATION NUMBER: 31,794
REFERENCE/DOCKET NUMBER: UF
                                                                                                                                                                                    APPLICATION NUMBER: US 0 FILING DATE: 21-APR-1992
                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 0 FILING DATE: 29-JUN-1992
                                                                                                                                                                       CLASSIFICATION:
                                                                                                                                                                                                                                           CLASSIFICATION:
                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US 07/908,241
                                                                                                                                                                                                                                                                                                                                           FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       394 GTATAATTGTAGAGTTAT 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 334 TATGTTCTCTGGAAAGAGTACAGAATTAATTAGGTTAGTAAACCGGTATCAAATAGCCAC 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  274 AAATAAACACTTTATGTATATAATAATGTCATGTGGATTTATTCATCTTATATTAGGACC 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    214 TATATAGATCCAAGAAGACATATAACTTGGAATAATATTTTATCCATATTGAAGAAAAAT 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     154 AACATCATTAATACGATTAAGCGATGTGATATAAATACCTATGATTCGTTTGATATTACT 213
                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US/09/299,268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: Gainesville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               123; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     32606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Florida
1104 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Application US/09299268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         E: David R. Saliwanchik
2421 N.W. 41st Street, Suite A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Vi uela, Eladi
Gibbs, E.P.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Moyer, Richard W.
                                                                                                                                                                                                                                                                                                           -JUL-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eladio
                                                                                                                                                                                                                                                                      us 07/908,630
                                                                                                                                                                                                      US 07/342,212
                                                                                                                                                                                                                                                                                                                                                             08/901,127
                                    57:
                                                                                                   UF35.1.FWCC1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches 135; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
```

```
; NAME/KEY: CDS; LOCATION: 287..832
US-09-299-268-57
                                                                                                                              рь
                                                                                                                                                80
                                                                                                                                                                       밁
                                                                                                                                                                                      γ
                                                                                         멁
                                                                                                          Š
                                                                                                                                                                                                              Вþ
                                                                                                                                                                                                                                δÃ
Search completed: August 15, 2001, 16:14:59 Job time: 3310 sec
                                                                                                                                                                                                                                                   Query Match 2.9%; Score 42; DB 4; Length 1104; Best Local Similarity 47.7%; Pred. No. 0.21; Matches 123; Conservative 0; Mismatches 135; Indels 0; Gaps
                                                                                                                                                                                                            TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: unknown
MOLECULE TYPE: DNA (genomic)
FEATURE:
                                                                                                                              1369 tactcagtgttctgtttt 1386
                                              394 GTATAATTGTAGAGTTAT 411
                                                                                                                                                                                                                                                         0;
```

•			
· •			
•			
			•
·	·		
		·	
		•	
		•	
		·	

```
Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                      Database
                                                                                                                                                                                                                                                                                                                                                                                                                                        Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-484-964-1
1465
1 cgggaaggatttgt
August 15, 2001, 15:18:29; Search time 1167.5 Seconds (without alignments)
11861.611 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                       Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10228115 segs, 4726426750 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cgggaaggatttgtaaaccc.....gataaatgggcatgccagcc 1465
                                                                                                                                                                                                                                                                                                          gb_est5:*
gb_est6:*
gb_est7:*
gb_est8:*
gb_est9:*
gb_est10:*
                                                                                                                                                                                                                                                                                                                                                                         gb_est1:*
gb_est2:*
gb_est3:*
                                                                                                                                                                                                                                           gb_est14:*
gb_est15:*
gb_est16:*
gb_est17:*
                                                                                                                                                                                                                                                                                                                                                                 gb_est4:*
                                                                                                                                                 gb_est23:*
gb_est33:*
gb_est34:*
gb_est35:*
                                                                                                                                                                                              gb_est20:*
gb_est21:*
gb_est22:*
                                                                                                                                                                                                                                                                                gb_est11:*
gb_est12:*
gb_est13:*
                                                                                                                                                                                                                          gb_est18:*
gb_est19:*
                 em_esthum4:*
em_esthum5:*
em_esthum6:*
em_esthum7:*
                                                     em_esthum1: *
em_esthum2: *
em_esthum3: *
                                                                                          gb_est38:*
gb_est39:*
gb_est40:*
em_estba:*
                                                                                                                               gb_est36:*
gb_est37:*
em_esthum8:*
em_esthum9:*
                                                                                  em_estfun:*
                                                                                                                                                                                                                                                                                                                                                                                                          80:
81:
82:
82:
82:
83:
84:
85:
85:
85:
87:
90:
91:
91:
     108:
109:
110:
111:
111:
112:
113:
114:
115:
116:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        em_esthum26:*
em_esthum27:*
em_esthum28:*
em_estin1:*
em_estin2:*
em_estin3:*
em_estin4:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           em_esthum21:*
em_esthum22:*
em_esthum23:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      em_esthum18:*
em_esthum19:*
em_esthum20:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   em_esthum10:*
em_esthum11:*
em_esthum12:*
em_esthum13:*
em_esthum14:*
em_esthum15:*
                                                                                                                                                                                                                                                                                                                                                                                                                                              em_estin5:*
em_estom1:*
em_estom2:*
                                                                                                                                                                                                                                                                                                                                          em_estpl8:*
em_estpl9:*
                                                                                                                                                                                                                                                                                                                                                            em_estpl4:*
em_estpl5:*
em_estpl6:*
em_estpl7:*
                                                                                                                                                                                                                                                                                                                                                                                                 em_estov2:*
em_estpl1:*
em_estpl2:*
em_estpl3:*
                                                                                                                                                              em_estro15:*
em_estro16:*
em_estro17:*
em_estro18:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          em_esthum24:*
em_esthum25:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 em_esthum16:*
em_esthum17:*
                                                                                                                                                                                                                                                                                                                                                                                                                                     em_estov1:*
   em_estro19:*
em_estro20:*
gb_est25:*
gb_est26:*
gb_est27:*
gb_est29:*
gb_est29:*
gb_est29:*
gb_est31:*
gb_est41:*
gb_est41:*
gb_est41:*
gb_est44:*
                                                                                                                                                                                                   em_estrol4:*
                                                                                                                                                                                                          em_estrol3:*
                                                                                                                                                                                                                      em_estrol2:*
                                                                                                                                                                                                                                        em_estro10:*
                                                                                                                                                                                                                                                  em_estro9:*
                                                                                                                                                                                                                                                          em_estro8:*
                                                                                                                                                                                                                                                                  em_estro7:*
                                                                                                                                                                                                                                                                            em_estro6:*
                                                                                                                                                                                                                                                                                     em_estro5:*
                                                                                                                                                                                                                                                                                               em_estro4:*
                                                                                                                                                                                                                                                                                                        em_estro3:*
                                                                                                                                                                                                                                                                                                               em_estro2:*
                                                                                                                                                                                                                                                                                                                          em_estrol:*
                                                                                                                                                                                                                                                                                                                                   em_estpl10:*
                                                                                                                                                                                                                               em_estrol1:*
```

117: 118: 119: 120: 121: 122: 123: 124: 125: 126: 126: 126: 127: 128: 131: 131:

```
em_estro23:*
em_htc:*
gb_est107:*
gb_est108:*
gb_est109:*
                                                                                                                     9b_est48:
9b_est49:
9b_est50:
9b_est51:
9b_est52:
9b_est55:
9b_est55:
9b_est55:
9b_est56:
9b_est60:
9b_est70:
9b_est100:
9b_est1
Pred. No. is the number of results predicted by chance to have score greater than or equal to the score of the result being part and is derived by analysis of the total score distribution.
                                                                                         gb_est110:

gb_est110:

gb_est111:

gb_htc::

gb_htc::

gb_htc::

em_gss_hum1:

em_gss_hum1:

em_gss_hum3:

em_gss_hum6:

em_gss_hum6:

em_gss_hum6:

em_gss_hum6:

em_gss_hum7:

em_gss_hum7:

em_gss_hum6:

em_gss_hum6:

em_gss_hum6:

em_gss_hum7:

em_gss_hum6:

em_gss_hum6:

em_gss_hum6:

em_gss_hum6:

em_gss_rod1:

em_gss_rod3:

em_gss_rod3:

em_gss_rod4:

em_gss_10:

em_gss_rod4:

em_gss_10:

em
```

140: 136: 137: 138: 139:

printed, ۵

Result

No.

Score

Query Match

o o

779.6 760.8 751.2 737

945.2 933.2 864.2 852.8 846.8 843.8 842.4 840.6 800.4

```
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 1046)

L1,W.B., Gruber,C., Jessee,J. and Polayes,D.

Full-length cDNA libraries and normalization

Unpublished (2001)
                                                                                                                                                           prime, mRNA sequence.
                                                                                                                                                                                        AL528799 1046 bp mRNA EST 13-FEB-2001
AL528799 LTI_NFL001_NBC4 Homo sapiens cDNA clone CS0DD001YH20 5
                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                GI:12792292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        804
835
822
846
756
756
779
827
798
7731
7731
7731
7731
7731
7731
7731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ID
                                                                                                                                                                                                                                                                                                                                                                                          AV71409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AI066583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AL528799
AL563251
AL565221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AL037282
BE887652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BG531082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BG540101
                                                                                                                                                                                                                                                                                                                                                                                                                                        C88594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BG391730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BG531369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BE738302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AU138719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BG169405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARIES
                                                                                                                                                                                                                                                                                   ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BG531082 602560980
AU138719 AU138719
AI066583 ov47f05.x
BE738302 601572571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AL037282 DKFZP564A
BE887652 601511828
BG505745 601860219
BG429188 60249004
BG533601 602562234
BE888192 601511710
BG535057 602562660
BG502205 602548563
BG5031369 602559618
BG547743 602575593
BG5303010 602559611
                                                                                                                                                                                                                                                                                                                                                                                                       BG391730 602418019
BG500627 602547007
C88594 C88594 Mous
AW006623 wt06a11.x
BG528729 602579628
                                                                                                                                                                                                                                                                                                                                                                            AV714091 AV714091
BG502885 602550444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AK011074 Mus muscu
AL532393 AL532393
BG169405 602320976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AL583408 AL583408
AK002536 Mus muscu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AL583458 AL583458
AL570877 AL570877
AL544942 AL544942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BG541610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AL521483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AL533666 AL533666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AL565221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AL528799 AL528799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BG529400
                                                                                                                                                                                                                                                                                                                                              BG248994 602361954
AU127846 AU127846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 602568937
0 602571169
1 602557324
                                                                                                                                                                                                                                                                                                                               AU127846
602561877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AL532394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AL565221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  602558559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                               Ωy
                                                                                                                                                                                                                                                                                                                                                               뫄
                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                       Ş
                                                                                                                       밁
                                                                                                                                                Q
                                                                                                                                                                               밁
                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                           밁
                           80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        153
                                                                                                                                                                                                                                                                                                                                                                                                                                                          182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     122
                                                                                                                                                                                                                                           393
                                                                                                                                                                                                                                                                                                      333
                                                                                                                                                                                                                                                                                                                                                                 273
                                                                                                                                                                                                                                                                                                                                                                                             242
                                                                                                                                                                                                                                                                                                                                                                                                                            213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              \frac{\omega}{\omega}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ν
                                                                                                                                                                                                                                                                                                                                                              gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTTAGATTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acttgggggataagaagcaaggtgaatatatataactcaaagtcattggacaggatagca 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACCCCCGGGTGAAGCCACCGTCATCATGTCTGACCAGGAGGCAAAACCTTCAACTGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg 121
                                                                                                                                                                                                                                         ctgataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatc
                                                                                                                                                                                                                                                                                                                                                                                                                                          gtgagattcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcatact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACTTGGGGGATAAGAAGGAAGGTGAATATATAAACTCAAAGTCATTGGACAGGATAGCA
                                                         accetetectttttaaaaattacgtgtgcacagagaggtcacctttttcaggacattgca
                                                                                                                                                                                                CTGATAATCATACTCCAAAAGAACTGGGAATGGAAGAAGAAGATGTGAATTTATC
                                                                                                                                                                                  TCAATCCTTTTTTATTTTTAAAAATAGTTCTTTTGTAATGTGGTGTTCAAAACGGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Genoscope - Centre National de Sequencage
BP 191 91006 EVRY cedex - France
Email: seqref@genoscope.cns.fr, Web : www.genoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    מ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             vector. Library was normalized. Library was constructed by Life Technologies. Contact: Feng Liang Life Technologies, a division of Invitrogen 9800 Medical Center Drive Rockville, Maryland 20850, USA Fax: (1) 301 610 8371 Email: fliang@lifetech.com URL: http://fulllength.invitrogen.com" 2 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="Organ: brain; Vector: pCMVSPORT 6; 1st strand cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-stranded cDNA was digested with Not I and cloned into the Not I and Eco RV sites of the pCMVSPORT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="CSODD001YH20"
/clone_lib="LTI_NFL001_NBC4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /tissue_type="neuroblastoma/
lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64.5%;
98.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 945.2; DB 106; Length 1046; Pred. No. 2e-189; 1; Mismatches 9; Indels 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cells"
```

Gaps

ω --

I and

000

690

685 684.2

684 683 682.2 678.6 673.8 672.4 665.8

RESULT AL528799 LOCUS

452 421 392 361

572 541 512

692

301

241

272

O

REFERENCE AUTHORS

COMMENT

TITLE JOURNAL

SOURCE ORGANISM

KEYWORDS ACCESSION DEFINITION

ERSION

AL528799.1

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 2
AL563251/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
JOURNAL
                             Matches
                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             693
                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     753
                           964;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGATAAGGTGAGAGTTATGACTAACTCCAAAGATGGC-TYACTGAAGAAAAGGCATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cagataaggtgagagtaatgactaactccaaagatggcttcactgaagaaaaggcatttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cttttaaaatttgagggtctggaccaaaagaagagggaatatcaggttgaagtcaagatga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTTTAAAATTTGAGGGTCTGGACCAAAAGAAGAGGAATATCAGGTTGAAGTCAAGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            attggccctgatgttc-agcatgtgattacttcactcctggactgtgactttcagtggga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTGGCCCTGATGTTCTAGCATGTGATTACTTCACTCCTGGACTGTGACTTTCAGTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                             BP 191
Email:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AL563251 D71_NFL001_NBC4 Homo sapiens cDNA clone CS0DD001YH20 Prime, mRNA sequence.

AL563251
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished (2001)
Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 998)

Li,W.B., Grüber,C., Jessee,J. and Polayes,D.
                                                                                                                                                                                                                                                                                                                                                                                                                                    Genoscope - Centre National de Sequencage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Full-length cDNA libraries and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        numan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AL563251.1
                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sapiens
                                                                                                                                                                                                                                                                                                                                                                                   91006 EVRY cedex - France segref@genoscope.cns.fr. Web : www.genoscope.cns.fr. location/Qualifiers
                                                                                                          vector. Library was normalized. Library was constructed by Life Technologies. Contact: Feng Liang Life Technologies, a division of Invitrogen 9800 Medical Center Drive Rockville, Maryland 20850, USA Fax: (1) 301 610 8371 Email: fliang@lifetech.com URL: http://fulllength.invitrogen.com" 193 c 160 g 298 t 11 others
                                                                                                                                                                                                            /note="Organ: brain; Vector: pCMVSPORT 6; 1st strand cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-stranded cDNA was digested with Not I and cloned into the Not I and Eco RV sites of the pCMVSPORT 6
                                                                                                                                                                                                                                                                           /tissue_type="neuroblastoma cells"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                        /clone_lib="LTI_NFL001_NBC4"
/sex="male"
                                                                                                                                                                                                                                                                                                                                     /clone="CS0DD001YH20"
                                                                                                                                                                                                                                                                                                                                                /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GI:12912463
                                       63.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Jessee, J. and Polayes, D. braries and normalization
                         8,
                                    Score 933.2; DB 10
Pred. No. 6.9e-187;
                        Mismatches
                                                   106; Length 998;
                         Indels
                      2
                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   721
                      2
                                RESULT 3
AL565221/c
                                                                                                                     Qγ
                                                                                                                                                    g
       DEFINITION
                                                                                             밁
                                                                                                                                                                               QΥ
                                                                                                                                                                                                            DЬ
                                                                                                                                                                                                                                      Qy
                      LOCUS
                                                                                                                                                                                                                                                                      D
                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                               Ъ
                                                                                                                                                                                                                                                                                                                                                                                         Вb
                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Вp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QY
                                                                                                                                                                                 1051
                                                                                                                                                                                                              158
                                                                                                                                                                                                                                         991
                                                                                                                                                                                                                                                                      218
                                                                                                                                                                                                                                                                                                  931
                                                                                                                                                                                                                                                                                                                               278
                                                                                                                                                                                                                                                                                                                                                            871
                                                                                                                                                                                                                                                                                                                                                                                         338
                                                                                                                                                                                                                                                                                                                                                                                                                    811
                                                                                                                                                                                                                                                                                                                                                                                                                                                398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                638
                                                                                           39
                                                                                                                                                    98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           152 ttaaactcaaagtcattggacaggatagcagtgagattcacttcaaagtgaaaatgacaa
                                                                                       ccagaaaagttctaattttcattagcaattaataaagctatacatgcagaaatgaataca
                                                                                                                                                                                                                                                                                 aagatggcttcactgaagaaaaggcattttaagattttttaaaaatcttgtcagaagatc
                                                                                                                                                                                                                                                                                                                                           aagaggaatatcaggttgaagtcaagatgacagataaggtgagagtaatgactaactcca
                                                                                                                                                                                                                                                                                                                                                                                 CCAGAAAAGTTCTAATTTCATTWGCAATTAATAAAGCTATACATGCAGAAAATGAATACA
                                                                                                                                                                                                                                                                                                                            GAGAGGAATATCAGGTTGGAGTCAAGATAACAGATAAGGTGAGAGTAATAACTTACTCCA
                                                                                                                                                                                                                                                                   AAGATGGCTTTACTGAAGAAAAGGCATTTTAAGATTTTTTAAAAATCTTGTCAGAAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ttcactcctggactgtgactttcagtgggagatggaagtttttcagagaaattgaactgtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 accaatgcaagtgttcataatgactttccaattggccctgatgttc-agcatgtgattac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTTACTCCTGGACTGTKACTTTCAGTGGGAGATGGAAGTTTTTCAGAGGACTGAACTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCAATGCAAGTGTTCATAATGACTTTCCCATTGGCCCTGATGTTCTDGCATGTGATTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGTTATTTGAATTCTAGTGCTCATTATTCATTATTGTTTTTCATTGTGTGCTGATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tggtaatttgaattctagtgctcattattcattattgtttttcattgtgctgatttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTTGTANTGTGGTGTTCAAAACGGAATTGAAGACTGGCACCCCATCTCTTTGAAACNTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tttgtaatgtggtgttcaaaacggaattgaaaactggcaccccatctctttgaaacatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tggaggaagaagatgtgattgaagtttatcaggaacaaacggggggtcattcaacagttt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACTTCTCAAGAMACTCAAAGAGTCAAACTGTCAAAGACAGGGTGTTCCAATGAATTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cacatctcaagaaactcaaagaatcatactgtcaaagacagggtgttccaatgaattcac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCAGGTTTCTCTTTGAGGGTCAGAGAATTGCTRATAATCATACTCCAAAAGRACTGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tcaggtttctctttgagggtcagagaattgctgataatcatactccaaaagaactgggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGATATTCTTTTATTTTTTTTTTTTCCCTAAATCCTTTTTTATTTTTAAAAATAGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGAGGAAGAAGATGTGAAGTTTWTCAGGAACAAACGGGGGGTCATTCAACAGTTT
    AL565221
AL565221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTAAACTCAAAGTCATTGGACAGGATGGCAGTGAGATTCACTTCAAAGTGARAATGACAA
LTI_FL013_FBrn1 Homo sapiens cDNA clone CS0DF002Y003
                ďď
                   mRNA
                  16-FEB-2001
```

1050 159

990 219 930

810 339

399 750 459 691 519 631 571 639 699 451

511

391

819

879

939

99

w

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                     Д
                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /ERSION
                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                            Qý
                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
              Š
                                                    밁
                                                                                   δÃ
                                                                                                                      밁
                                                                                                                                                     Qy
                                                                                                                                                                                         뫄
                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                       864
                                                                                                                                                                                                                                                                                                                                                                                                                                        574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          924
                  933
                                                                                                                                                                                             684
                                                                                                                                                                                                                                                                744
                                                                                                                                                                                                                                                                                                 694
                                                                                                                                                                                                                                                                                                                                    804
                                                                                                                         624
                                                                                                                                                                                                                              753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gtgatcaagcotcagtoccottcatattaccottctcotttttaaaaaattacgtgtgcaca 633
                                                                                                                                                                                                                                                                                 caatgcaagtgttcataatgactttccaattggccctgatgttc-agcatgtgattactt
                                                                                                                                                                                                                                                                                                                                                                                                       GTGATCAAGCCTCAGTCCCCTTCATATTACCCTCTCTCTTTTAAAAATTACGTGTGCACW
gatgcttcactgaagaaaaggcattttaagattttttaaaaatcttgtcagaagatccc
                                                                                                                                          aaaatgacctttccttaacttgaagctacttttaaaatttgagggtctggaccaaaagaa
                                                                                                                                                                                             cactcctggactgtgactttcagtgggagatggaagtttttcagagagaactgaactgtgga
                                                                                                                                                                                                                                                                                                                                    GAGGAATATCAGGTTGAAGTCAAGATGACAGATAAGGTGAGAGTAATGACTAACTCCAAA
                                                                     gaggaatatcaggttgaagtcaagatgacagataaggtgagagtaatgactaactccaaa 932
                                                                                                                        AAAATGACCTTTCCTTAACTTGAAGCTACTTTTAAAATTTGAGGGTCTGGACCAAAAGAA
                                                                                                                                                                                                                                                                CAATGCAAGTGTTCATAATGACTTTCCAATTGGCCCTGATGTTCTAGCATGTGATTACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              prime, n
AL565221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Li,W.B., Gruber,C., Jessee,J. and Polayes,D. Full-length cDNA libraries and normalization Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 924)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Genoscope
Genoscope - Centre National de Sequencage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AL565221.1 GI:12916380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mRNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     segref@genoscope.cns.fr,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       91006 EVRY cedex - France
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Organ: Fetal brain; Vector: pCMVSPORT 6; 1st strand cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-stranded cDNA was digested with Not I and cloned into the Not I and Eco RV sites of the pcMVSPORT 6 vector. Library was constructed by Life Technologies. Contact: Feng Liang Life Technologies, a division of Invitrogen 9800 Medical Center Drive Rockville, Maryland 20850, USA Fax: (1) 301 610 8371 Email:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MdIyana Tilangelifetech.com URL:
fliangelifetech.com URL:
http://fulllength.invitrogen.com*
163 c 142 g 288 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone="CSODF002Y003"
/clone_lib="LTI_FL013_FBrn1"
/clone_lib="LTI_FL013_FBrn1"
/dev_stage="pooled tissue from post conception fetuses (20 week, 24 week and 26 week)"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              59.0%;
98.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 864.2; DB 10 Pred. No. 2.5e-172;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Web : www.genoscope.cns.fr.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 106; Length 924;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                872
                                                                                                                                                                                                  625
                                                                                                                                                                                                                                                                                                      752
                                                                                                                                                                                                                                                                                                                                                                            693
                                                                                                                                                                                                                                 812
                                                                                                                                                                                                                                                                      685
                                                                                                                                                                                                                                                                                                                                         745
                                                                                                                               565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4.
```

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AL521484
                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1413 gtgcatatttgatacaggtacccaatc 1439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  504 GATGGCTTCACTGAAGAAAAGGCATTTTAAGATTTTTTAAAAATCTTGTCAGAAGATCCC 445
                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 agaacactgctctttttagatttttatttgtacttttttggcctgggatatgggttttaaat 1112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         aatactggaaattgcacatggtacaaattttttcttcattactgtacagggatgatgtta 1292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cttattttattttaattgtatagaaagaaaaaaatgcctaaaataaggttttcttgcata 1232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ggacattgtctgtaccagcttcattaaaataaacaatatttgtcaaaaatcgtactaatg 1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           agaaaagttctaattttcattagcaattaataaagctatacatgcagaaatgaatacaac 1052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cacaataccttttttaatactcagtgttctgttttttttaaaaacttgatattcccgtatg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AATACTGGAAATTGCACATGGTACAAATTTTTTCTTCATTACTGTACAGTGATGATGTTA 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTTATTTTATTTTAATTGTATAGAAAAGAAAAAATGCCTAAAATAAGGTTTTCTTGCATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGACATTGTCTGTACCAGCTTCATTAAAATAAACAATATTTGT-AAAAATCATACTAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGCATATATGATACAGTTACCTAATM 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CACAATACCTTTTTAATACTCAGTGTTCTG-TTTTTTTAAAAACTTGATATTCCTGTATG
                                                                                                                                                                                                                                                                                                                                                                                                                    Li,W.B., Gruber,C., Jessee,J. and Polayes,D. Full-length cDNA libraries and normalization Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AL521484 B68 bp m
AL521484 LTI_NFL004_NBC2
                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mammalia; Eutheria;
1 (bases 1 to 868)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AL521484.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            prime, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                             Email: segref@genoscope.cns.fr, Web
                                                                                                                                                                                                                                                                                                                                                                 BP 191
                                                                                                                                                                                                                                                                                                                                                                                  Genoscope - Centre National de Sequencage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                   91006 EVRY cedex -
/note="Organ: brain; Vector: pCMVSPORT 6; 1st strand cDNA /note="Organ: brain; Vector: pCMVSPORT 6; 1st strand cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-stranded cDNA was digested with Not I and cloned into the NotI and Eco RV sites of the pCMVSPORT 6 vector. Library was normalized. Library was constructed by Life Technologies. Contact: Feng Liang Life Technologies, a division of Invitrogen 9800 Medical Center Drive Rockville, Maryland 20850, USA Fax: (1) 301 610 8371 Email: fliang@lifetech.com URL:
                                                                                                                                                                                                                                 /clone_lib="LTI_NFL004_NBC2"
                                                                                                                                                                                                                                                                    /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                      /lab_host="DH10B"
                                                                                                                                                                                          /tissue_type="neuroblastoma cells"
                                                                                                                                                                                                               /sex="male"
                                                                                                                                                                                                                                                   /clone="CS0DB001YN17"
                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GI:12784977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens cDNA clone CS0DB001YN17
                                                                                                                                                                                                                                                                                                                                                                   France
                                                                                                                                                                                                                                                                                                                                                 : www.genoscope.cns.fr.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28
```

```
RESULT
AL533666
                                                               밁
                                                                                 Qy
                                                                                                        뫄
                                                                                                                             Qy
                                                                                                                                                      뫄
                                                                                                                                                                          Qγ
                                                                                                                                                                                                  맑
                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                δÕ
                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                           781
                                                                                                                                                        721
                                                                                                                                                                                                    661
                                                                                                                                                                                                                         716
                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                     656
                                                                                                                                                                                                                                                                                           541
                                                                                                                                                                                                                                                                                                                  596
                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                           476
                                                                                                                                                                                                                                                                                                                                                                                                                                                       416
                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Sir
hes 865;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             56 tgcggagacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaa 115
                            G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Н
                                                                         agatgacagataaggtgagagtaatgac 922
                                                                                                      AAGCTACTTTTAAAATTTGAGGGTCTGGACCAAAAGAAGAGGAATATCAGGTTGAAGTCA
                                                            AGATGACAGATAAGGTGAGAGTAATGAC 868
                                                                                                               aagctacttttaaaatttgagggtctggaccaaaagaagaggaatatcaggttgaagtca
                                                                                                                                                 GTGGGAGATGGAAGTTTTTTCAGAGAACTGAACTGTGGAAAAATGACCTTTCCTTAACTTG
                                                                                                                                                             gtgggagatggaagtttttcagaggaactgaactgtggaagaatgacctttccttaacttg
                                                                                                                                                                                              TTTCCAATTGGCCCTGATGTTCTAGCATGTGATTACTTCACTCCTGGACTGTGACTTTCA
                                                                                                                                                                                                           tttccaattggccctgatgttc-agcatgtgattacttcactcctggactgtgactttca
                                                                                                                                                                                                                                                      attgcattttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgac 715
                                                                                                                                                                                                                                                                                                 catattaccctctcctttttaaaaattacgtgtgcacagagagggtcacctttttcaggac 655
                                                                                                                                                                                                                                                                                                                                 gaattgaaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTGCATTTTCAGGCTTGTGGTGATAAATAAGATCGACCAATGCAAGTGTTCATAATGAC
                                                                                                                                                                                                                                                                                     CATATTACCCTCTCTTTTTAAAAATTACGTGTGCACAGAGAGGTCACCTTTTTCAGGAC
                                                                                                                                                                                                                                                                                                                                                                             GAATTGAAAACTGGCACCCCATCTCTTTGAAACATCTGGTAATTTGAATTCTAGTGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tttccctcaatccttttttatttttaaaaatagttcttttgtaatgtggtgttcaaaacg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTTCCCTCAATCCTTTTTTATTTTTAAAAATAGTTCTTTTGTAATGTGGTGTTCAAAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATACTGTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGTCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           catactgtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATAGCGGTGAGATTCACTTCAAAGTGAAAATGACAACATCTCAAGAAACTCAAAGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         atagcagtgagattcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaat 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGCGGAGACCCCCGGGTGAAGCCACCGTCATCATGTCTGACCAGGAGGCAAAACCTTCAA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AL533666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   http://fulllength.invitrogen.com"
151 c 186 g 270 t
    907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             58.2%;
99.7%;
   dq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 852.8; DB 10J, Pred. No. 6.3e-170; Indels
    mRNA
  EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 868;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1; Gaps
                                                                                                                             894
                                                                                                                                                  780
                                                                                                                                                                        834
                                                                                                                                                                                                                                          660
                                                                                                                                                                                                                                                                                       600
                                                                                                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                                                                                                                                                                                                 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۲.
γQ
```

```
Вb
                                                                                                         Б
                                                                                                                                         QY
                                                                       20
                                                                                                                                                                             В
                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                               Ъ
                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                  Дb
                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                    Дb
                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                    gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
        422
                                         404
                                                                           362
                                                                                                           344
                                                                                                                                             302
                                                                                                                                                                             284
                                                                                                                                                                                        242 gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg
                                                                                                                                                                                                                                               224
                                                                                                                                                                                                                                                                                                                  164
                                                                                                                                                                                                                                                                                                                                                  122
                                                                                                                                                                                                                                                                                                                                                                              104 GACCCCCGGGTGAAGCCACCGTCATCATGTCTGACCAGGAGGCAAAACCTTCAACTGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                    44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                  ctgataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatc
tcaatccttttttattttaaaaaatagttcttttgtaatgtggtgttcaaaacggaattg
                                   GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGTCAGAGAATTG
                                                                                                                                                                                                                                                            acttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagca
                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGAAGGATTTGTAAACCCCGGAGCGAGGTTCTGCTTACCCGAGGCCGCTGCTGTGCGGA
                                                                                                                                                                                                                                          GTGAGATTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                                            ACTTGGGGGATAAGAAGGAAGGTGAATATATTAAACTCAAAGTCATTGGACAGGATAGCA
                                                                                                                                                                                                                                                                                                                                                                                              gacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gggaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Li,W.B., Gruber,C., Jessee,J. a Full-length cDNA libraries and Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Email: segref@genoscope.cns.fr, Web : www.genoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mammalia; Eutheria;
1 (bases 1 to 907)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AL533666.1 GI:12797159
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BP 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genoscope - Centre National
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AL533666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AL533666_LTI_FL013_FBrn1 Homo sapiens cDNA clone CS0DF002Y003 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       prime,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                91006 EVRY cedex - France
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="Organ: Fetal brain; Vector: pCMVSPORT 6; 1st strand cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-stranded cDNA was digested with Not I and cloned into the Not I and Eco RV sites of the pCMVSPORT 6 vector. Library was constructed by Life Technologies. Contact: Feng Liang Life Technologies, a division of Invitrogen 9800 Medical Center Drive Rockville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone="CSODF002Y003"
/clone_lib="LTII_FL013_FBrn1"
/clone_lib="LTII_FL013_FBrn1"
/dev_stage="pooled tissue from post conception fetuses (20 week, 24 week and 26 week)"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  http://fulllength.invitrogen.com"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    , Maryland 20850, USA Fax : (1) 301 610 8371 Email : fliang@lifetech.com URL :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 57.8%;
99.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chordata; Craniata; Vertebrata; Euteleostomi; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Jessee, J. and Polayes, D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 846.8; DB 10
Pred. No. 1.2e-168;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   206 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 de
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   280 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               normalization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequencage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 106;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
   481
                                                                                                       403
                                                                                                                                                                                                          301
                                                                                                                                      361
                                                                                                                                                                        343
                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                            223
                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                               103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
```

?

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
AL583458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ΩV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                acceteteettttaaaaattaegtgtgeacagagaggteacettttteaggaeattgea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              attattgtttgtttcattgtgctgatttttggttgatcaagcctcagtccccttcatatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cttttaaaatttgagggtctggac 864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gatggaagtttttcagagaactgaactgtggaaaaatgacctttccttaacttgaagcta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTATTGTTTGTTTTCATTGTGCTGATTTTTGGTGATCAAGCCTCAGTCCCCTTCATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTTTAAAATTTGAGGGGCTGGRC 907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATGGAAGTTTTTCAGAGAACTGAACTGTGGAAAAATGACCTTTCCTTAACTTGAAGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      attggccctgatgttc-agcatgtgattacttcactcctggactgtgactttcagtggga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTTTCAGGCTTGTGGTGATAAATAAGATCGACCAATGCAAGTGTTCATAATGACTTTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCCTCTCCTTTTTAAAAATTACGTGTGCACAGAGAGGTCACCTTTTTCAGGACATTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 prime, ml
AL583458
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 913)
Li,W.B., Gruber,C., Jessee,J. and Polayes,D. Full-length cDNA libraries and normalization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AL583458 913 bp
AL583458 LTI_NFL010_BC2
                                                                                                                                                                                                                                                                                                                                                 Email: segref@genoscope.cns.fr, Web
    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                      BP 191 91006 EVRY cedex -
                                                                                                                                                                                                                                                                                                                                                                                                        Genoscope - Centre National de Sequencage
                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                             Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AL583458.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mRNA sequence.
                 b
               Rockville, Maryland 20850, USA Fax: (1) 301
Email: filang@lifetech.com URL:
http://fulllength.invitrogen.com"
a 166 c 199 g 279 t 1 others
                                                                     /tissue_type="B cells from Burkitt lymphoma"
/note="Vector: pcMvSPORT 6; Site_1: NotI; lst strand cDNA
/note="Vector: pcMvSPORT 6; Site_1: NotI; lst strand cDNA
was primed with a NotI-oligo(dT) primer. Five prime end
enriched, double-stranded cDNA was digested with Not I and
cloned into the Not I and Eco RV sites of the pcMvSPORT 6
vector. Library was normalized. Library was constructed by
Life Technologies. Contact: Feng Liang Life Technologies,
a division of Invitrogen 9800 Medical Center Drive
a division of Invitrogen 9800 Medical Center Drive
                                                                                                                                                                                                                                                      /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="CSODLO12YDO5"
/clone_lib="LTI_NFL010_BC2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GI:12952440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo
                                                                                                                                                                                                                                                                                                                                                                                      France
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sapiens cDNA clone CS0DL012YD05
                                                                                                                                                                                                                                                                                                                                                                       www.genoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541
```

VERSION

AL570877 B87 bp AL570877 LTI\_NFL006\_PL2 Prime, mRNA sequence. AL570877 AL570877.1 GI:12927614

mRNA Homo

sapiens

CDNA

clone

CS0DI012YA10

DEFINITION ACCESSION

LOCUS

```
Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                     QY
                                                                                                                                                                                                                                                                                             뫄
                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                       QY
                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      γ
                                                                                                                                           ρy
                                                                                                                                                                                  γ
                                                                                                                                                                                                           Ъ
                                                                                                                                                                                                                             Qγ
                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                     ₽
                                                           δÃ
                                                                                 망
                                                                                                 Ωy
                                                                                                                       Ъ
                                                                                                                                                                  밁
RESULT 7
AL570877/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 871; Conserv
                                                                                                                                                                                                                                                                                                                   495
                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                           435
                                                                                                                                                                                                                                                                                                                                                                                                    375
                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                               361
                                         841
                                                                                                                          721
                                                                                                                                              735
                                                                                                                                                                   661
                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                     541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 AAACCCCGGAGCGAGGTTCTGCTTACCCGAGGCCGCTGCTGTGCGGAGACCCCCGGGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tocaaaagaactgggaatgggaagaagatgtgattgaagtttatcaggaacaaacggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGTCAGAGAATTGCTGATAATCATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tgttccaatgaattcactcaggtttctcttttgagggtcagagaattgctgataatcatac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         agccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgaggacttgggggataa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               aaaccccggagcgaggttctgcttacccgaggccgctgctgtgcggagacccccgggtga
                                                                                 atttttaaaaatagttcttttgtaatgtggtgttcaaaacggaattgaaaactggcaccc
                                                                                                                                                                                                                                                                                                                                                                                                                        TCCAAAAGAACTGGGGAATGGAGGAAGAAGATGTGAAGTTTATCAGGAACAAACGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   caaagtgaaaatgacaacacatctcaagaaactcaaagaatcatactgtcaaagacaggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGCCACCGTCATCATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTGGGGGATAA
                                                    agggtctggaccaaaagaagaggaatatcaggttgaagtca 894
                                                                                                                                                                                                            TAAAAATTACGTGTGCACAGAGAGGTCACCTTTTTCAGGACATTGCATTTTCAGGCTTGT
                                                                                                                                                                                                                                                                                                                                     ATTTTTAAAAATAGTTCTTTTGTAATGTGGTGTTCAAAACGGAATTGAAAACTGGCACCC
                                                                                                                                                                                                                                                                                                                                                                               AGGGTCTGGAC--AAAAGAAGAGGATATCAGGTTGAAGTCA
                                                                                                                                    ttc-agcatgtgattacttcactcctggactgtgactttcagtgggagatggaagttttt
                                                                                                                                                                             ggtgataaataagatcgaccaatgcaagtgttcataatgactttccaattggccctgatg
                                                                                                                                                                                                                      taaaaattacgtgtgcacagagaggtcacctttttcaggacattgcattttcaggcttgt
                                                                                                                          TTCTAGCATGTGATTACTTCACTCCTGGACTGTGACTTTCAGTGGGAGATGGAAGTTTTT
                                                                                                                                                                   GGTGATAAATAAGATCGACCAATGCAAGTGTTCATAATGACTTTCCAATTGGCCCCTGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     57.6%;
98.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 843.8; DB Pred. No. 5e-168;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   106;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           74
                                                                                                                                                                                                                                                                                                                                                              494
                                                                                                                                                                                                                                                                                                                                                                                                       434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 254
                                                                                                                                                                                                               660
                                                                                                                                                                                                                                    674
                                                                                                                                                                                                                                                         600
                                                                                                                                                                                                                                                                            614
                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                     554
                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                               374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                    840
                                                                                                         853
                                                                                                                                                                     720
```

```
밁
                                      Q
                                                                            밁
                                                                                                             Ş
                                                                                                                                                  В
                                                                                                                                                                                    ρ
                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                         QY
                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                                                             뫄
                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 863;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
     407
                                          590
                                                                                                                                                                                                                                        410 ttttcttttccctcaatccttttttttttaaaaatagttcttttgtaatgtggtgttc
                                                                                                                                                                                                                                                                                                                                                                             707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               887 TCCAACTGAGGACTTGGGGGATAAGAAGGAAGGTGAATATATWAGACTCAAAGTCATTGG 828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             111 ttcaactgaggacttgggggataaggaagcaaggtgaatatattaaactcaaagtcattgg 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                        aagaatcatactgtcaaagacagggtgttccaatgaattcactcaggtttctctttgagg
               ccccttcatattaccctctcctttttaaaaattacgtgtgcacagagagggtcaccttttt 649
                                                                                                                                                                 aaaacggaattgaaaactggcaccccatctctttgaaacatctggtaatttgaattctag
                                                                                                                                                                                                                                                                                                               ttgaagtttatcaggaacaacggggggtcattcaacagtttagatattctttttatttt 409
                                                                                                                                                                                                                                                                                                                                                                                        gtcagagaattgctgataatcatactccaaaagaactgggaatgggaggaagatgtgg
CCCCTTCATATTACCCTCCCCMYCHYAAAAATTACGTGTGCACAGAGAGGTCACCTTTTT
                                                                       TGCTCATTATTCATTATTGTTTGTTTTCATTGTGCTGATTTTTGGTGATCAAGCCTCAGT
                                                                                              tgctcattattcattattgttttgttttcattgtgctgatttttggtgatcaagcctcagt 589
                                                                                                                                              TTTTCTTTTCCCTCAATCCTTTTTTATTTTTAAAAATAGTTCTTTTGTAATGTGGTGTTC
                                                                                                                                                                                                                                                                                                GTCAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGGAATGGAGGAAGAAGATGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Li,W.B., Gruber,C., Jessee,J. and Polayes,D. Full-length cDNA libraries and normalization Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 887)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: segref@genoscope.cns.fr, Web : www.genoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genoscope - Centre National de Sequencage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             191 91006 EVRY cedex - France
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="CSODI012YA10"
/clone_ib="LTI NRI006 PL2"
/tissue_type="placenta"
/note="Vector: pcwVSPOR7 6; Site_1: NotI; 1st strand cDNA
was primed with a NotI-oligo(dT) primer. Five prime end
enriched, double-stranded cDNA was digested with Not I and
cloned into the Not I and Eco RV sites of the pcMVSPORT 6
vector. Library was normalized. Library was constructed by
Life Technologies. Contact: Feng Liang Life Technologies, a division of Invitrogen 9800 Medical Center Drive
Rockville, Maryland 20850, USA Pax: (1) 301 610 8371
http://fulllength.invitrogen.com"
70 a 177 c 149 g 274 t 17 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 57.5%;
97.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 842.4; DB 100, Pred. No. 9.8e-168; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 106; Length 887;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
 348
                                                                       408
                                                                                                                                                                                                                                                                                              588
                                                                                                                                                                                                                                                                                                                                                                     648
                                                                                                                                                468
                                                                                                                                                                                                                       528
                                                                                                                                                                                                                                                                                                                                                                                                         349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
```

Š

gggaaggatttgtaaaccccggaggggaggttctgcttacccgaggccgctgctgtgcgga

Matches

Conservative

4;

Mismatches

Indels

Gaps 61

ω

Best Local Similarity

```
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                         ORIGIN
                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AL544942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            aaaaggcattttaagattttttaaaaaatcttgtcagaagatcccaga 995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAGTCAAGATGACAGATAAGGTGAGAGTAATGACTDACTCCAAAGATGGCTTCACTGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                aagtcaagatgacagataaggtgagagtaatgactaactccaaagatggcttcactgaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aacttgaagctacttttaaaatttgagggtctggaccaaaagaagaggaatatcaggttg 888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAAAGGCATTTTAAGATTTTTTAAAAATCTTGTCAGAAGATCCCANA 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTRTCAGTGGGAGATGGAAGTYTHTCAGAGAACTGAACTGTGGAAAAATGACCTTTCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AACTTGAAGCTACTTTTAAAATTTGAGGGTCTGGACCAAAAGAAGAGGAATATCAGGTTG 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AATRACTHMCCAATTGGCCCTGATGTTCTAGCATGTGATTACTTCACYCCTGGACTGTRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aatgactttccaattggccctgatgttc-agcatgtgattacttcactcctggactgtga 768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AL544942 898 bp mRNA EST 16-FEB-2001 AL544942 LTI_NFL006_PL2 Homo sapiens cDNA clone CS0DI012YA10 5 Prime, mRNA sequence.
AL544942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BP 191 91006 EVRY cedex - France Email: segref@genoscope.cns.fr. Web : www.genoscope.cns.fr.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Li,W.B., Gruber,C., Jessee,J. and Polayes,D. Full-length cDNA libraries and normalization Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genoscope - Centre National de Sequencage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AL544942.1 GI:12877423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   numan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mmalia; Eutheria; (bases 1 to 898)
                                                                                                               259
                                                                                                               a
                                                                                                                                                  /tissue_type="placenta"
/note="Vector: pCMVSPOR7 6; Site_1: NotI; 1st strand cDNA
/note="Vector: pCMVSPOR7 6; Site_1: NotI; 1st strand cDNA
was primed with a NotI-oligo(dT) primer. Five prime end
enriched with a NotI-oligo(dT) primer. Five prime end
enriched, double-stranded cDNA was digested with Not I and
cloned into the Not I and Eco RV sites of the pCMVSPORT 6
vector. Library was normalized. Library was constructed by
Life Technologies. Contact: Feng Liang Life Technologies,
a division of Invitrogen 9800 Medical Center Drive
Rockville, Maryland 20850, USA Fax: (1) 301 610 8371
Email: fliang@lifetech.com URL:
                                                                                                             http://fulllength.invitrogen.com"
160 c 200 g 275 t
                                                                                                                                                                                                                                                                                                                                                                        /clone="CS0DI012YA10"
/clone_lib="LTI_NFL006_PL2"
                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ocation/Qualifiers
57.4%;
98.3%;
Score 840.6; DB 106; Length 898; Pred. No. 2.4e-167;
                                                                                                           4 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         228
```

Qy

Q

문

Ъ

```
RESULT 9
AL521483/c
LOCUS
                                           SOURCE
ORGANISM
                                                                 VERSION
KEYWORDS
            REFERENCE
                                                                                        ACCESSION
                                                                                                              DEFINITION
  AUTHORS
                                                                                                                                                                                                 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    122
                                                                                                                                                                             849
                                                                                                                                                                                                                                                                  729
                                                                                                                                                                                                                                                                                       722
                                                                                                                                                                                                                                                                                                             669
                                                                                                                                                                                                                                                                                                                                  662
                                                                                                                                                                                                                                                                                                                                                         609
                                                                                                                                                                                                                                                                                                                                                                             602
                                                                                                                                                                                                                                                                                                                                                                                                  549
                                                                                                                                                                                                                                                                                                                                                                                                                       542
                                                                                                                                                                                                                                                                                                                                                                                                                                             489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         182
                                                                                                                                                                                                                                           781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          acttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagca
                                                                                                                                                                                                                                                                 aaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcattattc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tcmatccttttttatttttaamamatagttcttttgtaatgtggtgttcamaacggamattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTGAGATTCACTTCAAAGTGAAAATGACAACATCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gtgagattcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcatact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACTTGGGGGATAAGAAGGAAGGTGAATATATTAAACTCAAAGTCATTGGACAGGATAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GACCCCCGGGTGAAGCCACCGTCATCATGTCTGACCAGGAGGCAAAACCTTCAACTGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaaccttcaactgagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGAAGGATTTGTAAACCCCGGAGCGAGGTTCTGCTTACCCGAGGCCGCTGCTGTGCGGA
                                                                                                                                                                                                                                   gatggaagtttttcagagaactgaactgtggaaaaatgacctttcc-ttaacttgaagct
                                                                                                                                                                                                                                                                                                                                                                                                                                              AAAACTGGCACCCCATCTCTTTGAAACATCTGGTAATTTGAATTCTAGTGCTCATTATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCAATCCTTTTTTATTTTTAAAAATAGTTCTTTTGTAATGTGGTGTTCAAAACGGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGTCAGAGAATTG
                                                                                                                                                                             ACTTTTAAAATTTGAGGGGCTGGACC-AAARAAGAAGGATATCAGGTTGGA 898
                                                                                                                                                                                                acttttaaaatttgagggtctggaccaaaagaagaggaatatcaggttgaa 890
                                                                                                                                                                                                                       ATTATTGTTTGTTTCATTGTGCTGATTTTTGGTGATCAAGCCTCAGTCCCCTTCATATT
                                                                                      AL521483 P35 bp mRNA
AL521483 LTI_NFL004 NBC2 Homo sapiens
prime, mRNA sequence.
AL521483
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 935)
Li,W.B., Gruber,C., Jessee,J. and Polayes,D.
                                                                 AL521483.1
EST.
                                            Homo sapiens
                                                        human.
                                                                             GI:12784976
                                                                                                              cDNA clone
                                                                                                                       EST
                                                                                                             13-FEB-2001
CS0DB001YN17
                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                        601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     89
                                                                                                                                                                                                                                              839
                                                                                                                                                                                                                                                                    788
                                                                                                                                                                                                                                                                                                                                                         899
                                                                                                                                                                                                                                                                                                                                                                               661
                                                                                                                                                                                                                                                                                                                                                                                                     608
                                                                                                                                                                                                                                                                                                                                                                                                                                              548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     248
                                                                                                                                                                                                                         848
                                                                                                              ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                           δÃ
                                                                                                                   δδ
                                                                                                                                             В
                                                                                                                                                                 δõ
                                                                                                                                                                                      망
                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                             Вb
                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                         ₽
                                                                                                                                                                                                                                                                                                                                            δÃ
                                                                                                                                                                                                                                                                                                                                                                   Ър
                                                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
              В
                             νQ
                                                        맑
                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                     516
                                                                                                                         635
                                                                                                                                                 576
                                                                                                                                                                                          636
                                                                                                                                                                                                               515
                                                                                                                                                                                                                                      969
                                                                                                                                                                                                                                                          455
                                                                                                                                                                                                                                                                               756
                                                                                                                                                                                                                                                                                                     396
                                                                                                                                                                                                                                                                                                                          815
                                                                                                                                                                                                                                                                                                                                                                    875
                                                          456
                 396
                                                                                                                                                                                                                                                                                                                                                                                                                                                           864;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          þ
```

δ

밁 Qy 밁

õ 밁 δÃ Š 밁 δÃ 밁 δ 밁 δ 밁 δÃ Ъ Q ₽ Q В Ωy 밁

B

```
attetttttattttttttttttccctcaatcctttttat-ttttaaaaatagttettt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gtttctctttgagggtcagagaattgctgataatcatactccaaaagaactgggaatgga
                                                                TAATTTGAATTCTAGTGCTCATTATTCATTATTGTTTTCATTGTGCTGATTTTTGG
                                                                                                                                                                                                                                                                                                                                                  TGNAANGNGGTGNCCAAAACGGAANGGAAMACCGGCACCCCATCTCCCCTGAAACATCCGG
                                                                                                                                                                                                                                                                                                                                                                   tgtaatgtggtgttcaaaacggaattgaaaactggcaccccatctctttgaaacatctgg
                                                                                                                                                                                                                                                                                                                                                                                                                      ATTCTTTTATTTTTTTTTTCCCTCAATCCTSTTTTATCGCTCAAAAATMGCTCTNT
                                                                                                                                                                                                         TGACCAAGCCTCAGCCCCCTCATATTACCCCCCCCTSCTAAAAATCACGTGTGCACAG
                                                                                                                                                                                                                           tgatcaagcctcagtccccttcatattaccctctcctttttaaaaattacgtgtgcacag
                actcctggactgtgactttcagtgggagatggaagtttttcagagaactgaactgtggaa
ACCCCCGGACTGTGACTTTCAGTGGGAGATGGAAGTTTTTCAGAGAACTGAACTGTGGAA
                                                                                                                                     Full-length cDNA libraries and normalization Unpublished (2001) Contact: Genoscope Centre National de Sequencage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BP 191 91006 EVRY cedex - Franc
Email: segref@genoscope.cns.fr,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-stranded cDNA was digested with Not I and cloned into the Not I and Eco RV sites of the pcMVSPORT 6 vector. Library was normalized. Library was constructed by Life Technologies. Contact: Feng Liang Life Technologies, a division of Invitrogen 9800 Medical Center Drive Rockville, Maryland 20850, USA Fax: (1) 301 610 8371 Email: fliang@lifetech.com URL: http://fulllength.invitrogen.com"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="CSODB001YN17"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="Organ:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /tissue_type="neuroblastoma cells"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone_lib="LTI_NFL004_NBC2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   54.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 800.4; DB 105; Pred. No. 7.2e-159;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      brain; Vector: pCMVSPORT 6; 1st strand cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    France
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               de Sequencage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Web : www.genoscope.cns.fr.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         935;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                           454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      275
                                    813
                                                                                                                                                                                                                                                                                                                 574
                                                                                                                                                                                                                                                                                                                                                                                       514
                                                                                                                                                                                                                                                                                                                                                                                                                          697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             757
                                                                       397
                                                                                                        753
                                                                                                                                           457
                                                                                                                                                                             694
                                                                                                                                                                                                             517
                                                                                                                                                                                                                                               634
                                                                                                                                                                                                                                                                                  577
                                                                                                                                                                                                                                                                                                                                                      637
```

4.

```
δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 10
AL583408/c
                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                  Query Match
Best Local Similarity
Matches 871; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                   COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            502 ttgaaacatctggtaatttgaattctagtgctcattattcattattgtttttcattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gaacactgctctttttagattttatttgtactttttggcctgggatatgggttttaaatg 1113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      aggaatatcaggttgaagtcaagatgacagataaggtgagagtaatgactaactccaaag 933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAACACTGC - CCTTTTGGATGCYATNTGTACSGTNNGGCCTGGGAAATGGGGCSCCAAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAAAAGTTCTAATTTTCATTAGCAATTAATAAAGCTACACATGCAGAAATGAACACAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gaaaagttctaattttcattagcaattaataaagctatacatgcagaaatgaatacaaca 1053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGGCTTCACTGAAGAAAAGGCATKTTAAGATKTKTTAAAAATCTTGTCAGAAGAACCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       atggcttcactgaagaaaaggcattttaagattttttaaaaatcttgtcagaagatccca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aaatgacctttccttaacttgaagctacttttaaaatttgagggtctggaccaaaagaag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGGAATATCAGGTTGAAGTCAAGATGACAGATAAGGTGAGAGTAATGACTAACTCCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAATGACCTTTCCCTAACCTGAAGCTACTBTTAAAATTTGAGGGTCTGGACCAAAAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Li,W.B., Gruber,C., Jessee,J. and Polayes,D. Full-length cDNA libraries and normalization Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Genoscope - Centre National de Sequencage
BP 191 91006 EVRY cedex - France
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 933)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    prime, mRNA sequence.
AL583408
AL583408.1 GI:12952341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AL583408 933 bp mrNA EST 16-FEB-200 AL583408 LTI_NFL010_BC2 Homo sapiens cDNA clone CSODL012YD05
                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                     91006 EVRY cedex - France segref@genoscope.cns.fr, 
                                                                                                                                                 Ø
                                                                                                                                                                           http://fulllength.invitrogen.com"
1 166 c 149 g 298 t
                                                                                                                                                                                                                                                                                                                                            /clone_lib="LTI_NFL010_BC2"
/sex="male"
                                                                                                                                                                                                                                                                                                                                                                                       /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                            /clone="CS0DL012YD05"
                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                               53.2%;
95.3%;
                                                  8;
                                                Score 779.6; DB 10
Pred. No. 1.8e-154;
8; Mismatches 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Web : www.genoscope.cns.fr
                                                                              DB 106; Length 933;
                                                                                                                                                 8 others
                                              Indels 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    277
                                                                                                                                                                                                                                                                         I and
                                                VERSION
                                                              ACCESSION
```

```
RESULT 1
                                                                                                        Ър
                                                                                                                                 Ωy
                                                                                                                                                             В
                                                                                                                                                                                     Qy
                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                          Db
                                                                                                                                                                                                                                                                                                     QΥ
                                                                                                                                                                                                                                                                                                                                 Вþ
                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                        Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 맖
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ър
                                    Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                      1221
                                                                                                                                1399 gatattcccgtatg 1412
                                                                                                                                                                                                                                              1281
                                                                                                                                                                                                                                                                                                                                                              1161
                                                                                                                                                                                                                                                                                                                                                                                                                    1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1041
                                                                                                                                                                                                                                                                                                                                                                                                                                                388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              861
                                                                                                        <u>3</u>
                                                                                                                                                             90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        922 TTGAWACATCTGGTATTGGAATCTAGGCTCATAATCATT----ATGTTTGTGTTCATTG
                                                                                                       GATATTCCTGTATG
                                                                                                                                                          GATTTAATTAAGGCYACAATACCTTTTTAATACTCAGTGTTCTG-TTTTTTTAAAWACTT
                                                                                                                                                                         999atgatgttaatgactttg--gagcactgaaagttactgaagtgccttctgaatcaag
                                                                                                                                                                                                                                                                                       tgggttttaaatggacattgtctgtaccagcttcattaaaataaacaatatttgtcaaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                           actaactccaaagatggcttcactgaagaaaaggcattttaagatttttaaaaatcttg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ctgaactgtgggaaaaatgacctttccttaacttgaagctacttttaaaatttgagggtct 860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGATGATGTTAATGACTCTGAAGACAACTGAAAGTTACTGAAGTGCCTTBTGAWTCAAG
                                                                                                                                                                                                                                                                         TTCTCTTGCATAAATACTGGAAATTGCACATGGTACAAATTTTTTCTTCATTACTGTACA
                                                                                                                                                                                                                                                                                                                                                                                       TGGGTYTTAAATGGACATTGTCTGTACCAGCTTCATTAAAATAAACAATATTTGT-AAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 99accaaaagaagaagaatatcaggttgaagtcaagatgacagataaggtgagagtaatg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGAACTGTGGAAAAATGACCTTTCCTTAACTTGAAGCTACTTTTAAAATTTGAGGGTCT
                                                                                                                                                                                                                                                                                                                               ATCATACTAATGCTTATTTTATTTTAATTGTATAGAAAGAMAAAAAYGCCTAAAATAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGACCAAAAGAAGAAGAATATCAGGTTGAAGTCAAGATGACAGATAAGGTGAGAGTAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tacgtgtgcacagagaggtcacctttttcaggacattgcattttcaggcttgtggtgata 681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACTAACTCCAAAGATGGCTTCACTGAAGAAAAGGCATTTTAAAGATTTTTAAAAAATCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tgctgatttttggttgatcaagcctcagtccccttcatattaccctctcctttttaaaaat 621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TACGTGTGCACAGAGAGGTCACCTTTTTCAGGACATTGCATTTTCAGGCTTGTGGTGATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGCTGA-TTTTGGTGATCAAGCCTCAGTCCCCTTCATATTACCCTCTCCTTTTTAAAAAT
AK002536 1175 bp mRNA HTC 08-FEB-2001 Mus musculus adult male kidney cDNA, RIKEN full-length enriched library, clone:0610011F08, full insert sequence.
                                                                                                        18
                                                                                                                                                                                                                                                                         151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               629
```

Mus musculus (strain:C57BL/6J) adult male kidney cDNA to clone\_lib:RIKEN full-length enriched mouse cDNA library

AK002536.1 CAP trapper.

GI:12832590

```
JOURNAL REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
MEDLINE
REFERENCE
                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                        source
                                                                                                                                            Arakawa T., Carninci, P., Fukuda, S., Fukunishi, Y., Furuno, M.,
Hanagaki, T., Hara, A., Hayatsu, N., Hiramoto, K., Hiraoka, T., Hori, F.,
Imotani, K., Ishii, Y., Itoh, M., Izawa, M., Kato, H., Kawai, J.,
Kojima, Y., Konno, H., Kouda, M., Koya, S., Kurihara, C., Matsuyama, T.,
Miyazaki, A., Nishi, K., Nomura, K., Numazaki, R., Ohno, M., Okazaki, Y.,
Okido, T., Owa, C., Saito, H., Saito, R., Sakai, K., Sano, H.,
Sasaki, D., Shibata, K., Shibata, Y., Shibata, S., Shizaki, T.,
Soyabe, Y., Suzuki, H., Tayami, M., Tayawa, A., Takahashi, F.,
Tanaka, T., Tejima, Y., Toya, T., Yamamura, T., Yasunishi, A.,
Tejima, Y., Toya, T., Yamamura, T., Yasunishi, A.,
Tejima, Y., Toya, T., Yamamura, T., Yasunishi, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Shibata,K., Itoh,M., Aizawa,K., Nagaoka,S., Sasaki,N., Carninci,P., Konno,H., Akiyama,J., Nishi,K., Kitsunai,T., Tashiro,H., Itoh,M., Kikuchi,N., Ishii,Y., Naksuura,S., Hazama,M., Nishine,T., Harada,A., Yanmoto,R., Matsumoto,H., Sakaguchi,S., Ikegami,T., Kashiwagi,K., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E., Watshiki,M., Yoneda,Y., Ishikawa,T., Ozawa,K., Tanaka,T., Matsuura,S., Okazaki,Y., Muramatsu,M., Inoue,Y. and Hayashizaki,Y. RIKEN integrated sequence analysis (RISA) system--384-format sequencing pipeline with 384 multicapillary sequencer Genome Res. 10 (11), 1757-1771 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20499374
3 (site
                                                                                                                                                                                                                                                                                                                                                                                                                                                           URL:http://genome.gsc.riken.go.jp/, Tel:81-45-503-9222,
Fax:81-45-503-9216)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Physical and Chemical Research (RIKEN), Laboratory for Genome Exploration Research Group, RIKEN Genomic Sciences Center (GSC), RIKEN Yokohama Institute; 1-7-22 Suehiro-cho, Tsuruni-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:genome-res@gsc.riken.go.jp,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (10-JUL-2000) Yoshihide Hayashizaki, The Institute of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5 (bases 1 to 1175)
Adachi, J., Aizawa, K., Akahira, S., Akimura, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nature 409, 685-690 (2001)
5 (bases 1 to 1175)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Itoh, M., Konno, H., Okazaki, Y., Muramatsu, M. and Hayashizaki, Y. Normalization and subtraction of cap-trapper-selected cDNAs to prepare full-length cDNA libraries for rapid discovery of new genes Genome Res. 10 (10), 1617-1630 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Carninci, P., Shibata, Y., Hayatsu, N., Sugahara, Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                Please visit our web site (http://genome.gsc.riken.go.jp/) for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Functional annotation of a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FANTOM Consortium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The RIKEN Genome Exploration Research Group Phase II Team and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Methods Enzymol. 303, 19-44 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Carninci, P. and Hayashizaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        clone:0610011F08
                                                                                                                                                                                                                                                                                                                                                                                                                  further details.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Yoshida, K., Yoshino, M., Muramatsu, M. and Hayashizaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20530913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        High-efficiency
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (sites)
/strain~"C57BL/6J"
/db_xref="taxon:10090"
/db_xref="MGD:MGI:1197010"
                                                             /organism="Mus musculus"
                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1-length cDNA cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         full-length mouse cDNA collection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Aono, H., Arai, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Shibata, K.,
                                                           δõ
                                                                                                      В
                                                                                                                                          Qy
                                                                                                                                                                                        밁
                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                              Вþ
                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                                         QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DЪ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     polyA_site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                polyA_signal
                                                                                                                                                                                                                                                                                                                                                                       448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              148
                                                                                                                                                                                                                                                                                                                                                                                                                                                           388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            983;
```

```
62 gacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 gggaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgga 61
                        gacattgcattttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataat 712
                                                                                                                                                                                                                                                                                                           gaattgaaaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctca 535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ctgataatcatactccaaaagaactgggaatggaagaagatgtgattgaagtttatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGAGATACATTTCAAAAGTGAAAATGACAACACATCTCAAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACTTAGGCGATAAGAAGGAAGGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACCCCCGGGTGAATCCA-CGTCACCATGTCTGACCAGGAGGCAAAACCTTCAACTGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACTGTGCATTTTCAGGTTTGTGATGATAAA-AAGATCGACCAATGGGAGCTTTCCTATG
                                                                                                                  catattaccctctctcttttaa---aaattacgtgtgcacagagaggtcacctttttcag
                                                                                                                                                                                                                                                                                    AAATTGAATACTGGCACTCCATCTCTTAGAA------CATATGAATTCTAGTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTTGAAGGTCAGAGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         acttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagca
                                                                                                                                                                                        ATATTCATTATTGGTTGTTTTTGTTGCTGATTTTTTGGTGATCAGACCTCAGCTCCCTT
                                                                                                                                                                                                                 ttattcattattgtttgttttcattgtgctgattttttggtgatcaagcctcagtcccctt 595
                                                                                                                                                                                                                                                                                                                                                                                                                           ttccctcaatccttttttatttttaaaaaatagttcttttgtaatgtggtgttcaaaacg- 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGATAATCATACTCCGAAAGAACTGGGGAATGGAGGAAGAAGATGTGATTGAAGTTTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AATACTGCCCTTTTTCCTTTAAGAGATTTCATGTGTGCACAGAGAGGCCACCCTTTTCAG
                                                                                                                                                                                                                                                                                                                                                                              TTCCCTCAATCCTTTTTTATTTTTAAAAAATAGTTCTTTTGTAATGTGGTTTTCAAAATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /protein_id="BAB22172:1"
/db_xref="GI:12832591"
/trans!ation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
KKLKESYCQRGCPMMSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
1160. .1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="putative"
1175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /tissue_type="kidney"
/clone_lib="RIKEN full-length enriched mouse cDNA library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /db_xref="MGD:MGI:1892023"
/clone="0610011F08"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                51.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 760.8; DB 192; Length 1175; Pred. No. 1.7e-150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                            678
                                                                                                                                                                                        618
                                                                                                                                                                                                                                                                                    558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           88
                                                                                                                                                                                                                                                                                                                                                                                   507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10;
```

```
AK011074
                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                   MEDLINE
                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                              AUTHORS
                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1150 GCTTCATTAAAATAAACAATATTTGT 1175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1130 gcttcattaaaataaacaatatttgt 1155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1090 TGATTCTGTTTGTACTTTTTGGCCTGGGACATGGGTTTTCAAGGGACATCGTCTGTACCA 1149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1070 agattttatttgtactttttggcctgggatatgggttttaaatggacattgtctgtacca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1035 CAGCAGTTATTAATAAAGTTACTCATACAGAAGTGTACGCAACAGA-----CACTGCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1013 tagca---attaataaagctatacatgcagaaatgaatacaacagaacactgctcttttt 1069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGAAAGTGTCTTGAGCAAGACAGTATTGTCAGAAGATCCCAGGAAAGTTCTAATGTTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ggcattttaagattttttaaaaatcttgtcagaagatccccagaaaagttctaattttcat 1012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAAGATGACAGATACAGTGAGAGCAACAGCTAACTCCAAAGGTGGCTTCACTGGAGAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGAAGCTACTTTTAAAATCTGCGGGTCTGGACCAAAAGAAGAACATCAT--GTTTGTAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | tgaagctacttttaaaaatttgagggtctggaccaaaagaagaagaagaatatcaggttgaagt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAGTGGGAGATGGAAATTTTTCAGAGAACTGAACTGTGG-AAAATGACCTTTCCTCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cagtgggagatggaagtttttcagagaactgaactgtggaaaaatgacctttccttaact
                                                                                                                             Shibata,K., Itoh,M., Aizawa,K., Nagaoka,S., Sasaki,N., Carninci,P., Konno,H., Akiyama,J., Nishi,K., Kitsunai,T., Tashiro,H., Itoh,M., Kikuchi,N., Ishii,Y., Nakamura,S., Hazama,M., Nishine,T., Harada,A., Yamamoto,R., Matsunoto,H., Sakaguchi,S., Ikegami,T., Harada,A., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E., Watshiwaji,K., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E., Watshixi,M., Yoneda,Y., Ishikawa,T., Ozawa,K., Tanaka,T., Matsuura,S., Okazaki,Y., Muramatsu,M., Inoue,Y. and Hayashizaki,Y. RIKEN integrated sequence analysis (RISA) system-384-format sequencing pipeline with 384 multicapillary sequencer
                                                                                                                                                                                                                                                                                                                                                                                                                           Itoh, M., Konno, H., Okazaki, Y., Muramatsu, M. and Hayashizaki, Y. Normalization and subtraction of cap-trapper-selected cDNAs to prepare full-length cDNA libraries for rapid discovery of new compare fees. 10 (10), 1617-1630 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mus musculus (strain:C57BL/6J) 13 days embryo liver cDNA clone_lib:RIKEN full-length enriched mouse cDNA library
                                                                                                            Genome Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Carninci, P., Shibata, Y., Hayatsu, N., Sugahara, Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Carninci,P. and Hayashizaki,Y.
High-efficiency full-length cDNA cloning
Methods Enzymol. 303, 19-44 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAP trapper.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AK011074.1 GI:12846958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mus musculus 13 days embryo liver cDNA, RIKEN full-length enriched library, clone:2510040N03, full insert sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AK011074
FANTOM Consortium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    clone: 2510040N03.
                                                                                                                                                                                                                                                                                                                                                                                                          20499374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          library,
                                                    (sites)
                                                                                                                                                                                                                                                                                                                                                                              (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (sites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (sites)
                           RIKEN Genome Exploration Research Group Phase II Team and
                                                                                                            10 (11), 1757-1771 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1180 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Shibata, K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 08-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               974
                                                                                                                                                                                                                                                                                                                                                                                                                                                               genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
  QУ
                                                          В
                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                      Matches
                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                              polyA_site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                      polyA_signal
                                                             29
  62 gacccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgagg 121
                                                                                        gggaaggatttgtaaaccccggagcgaaggttctgcttacccgaggccgctgctgtgcgga
                                                       985;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  physical and Chemical Research (RIKEN), Laboratory for Genome Exploration Research Group, RIKEN Gemomic Sciences Center (GSC), RIKEN Yokohama Institute; 1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:genome-res@gsc:riken.go.jp, URL:http://genome.gsc.riken.go.jp/, Tel:81-45-503-9222, Fax:81-45-503-9216)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Miyazaki, A. Nishi, K., Nomura, K., Numazaki, R., Ohno, M., Okazaki, Y., Okido, T., Owa, C., Saito, H., Saito, R., Sakai, C., Sakai, K., Sano, H., Sasaki, D., Shibata, K., Shibata, Y., Shinagawa, A., Shiraki, T., Sogabe, Y., Suzuki, H., Tagami, M., Tagawa, A., Takahashi, F., Tanaka, T., Tejima, Y., Toya, T., Yamamura, T., Yasunishi, A., Yoshida, K., Yoshino, M., Muramatsu, M. and Hayashizaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Adachi,J., Aizawa,K., Akahira,S., Akimura,T., Aono,H., Arai,A., Arakawa,T., Carninci,P., Fukuda,S., Fukudishi,Y., Fukudo,M., Hanagaki,T., Carninci,P., Hara,A., Hayatsu,N., Hiramoto,K., Hiraoka,T., Hori,F., Imotani,K., Ishii,Y., Itoh,M., Izawa,M., Kato,H., Kawai,J., Kojima,Y., Konno,H., Kodda,M., Koya,S., Kurihara,C., Matsuyama,T., Kojima,Y., Konno,H., Kodda,M., Koya,S., Kurihara,C., Matsuyama,T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Functional annotation of a full-length mouse cDNA collection Nature 409, 685-690 (2001) 5 (bases 1 to 1180)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cDNA library was prepared and sequenced in Mouse Genome
Encyclopedia Project of Genome Exploration Research Gro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      further details.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Please visit our web site (http://genome.gsc.riken.go.jp/) for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (10-JUL-2000) Yoshihide Hayashizaki, The Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence
                                                                                                                                                                                                                                                                                                                                  348
                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25.0. Second strand cDNA was prepared with the primer adapter
                                                                                                                                                                                                                                                                                                                                                                                    /note="putative"
1180
                                                                                                                                                                                                                                                                                                                                                                                                                                                            /protein_id="BAB27379.1"
/db_xref="GI:12846959"
/translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
/translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
KKLKESYCORQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
                                                                                                                                                                                                                                                                                                                                                        /note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /tissue_type="liver"
/clone_lib="RIKEN full-length enriched mouse cDNA library"
/dev_stage="13 days embryo"
                                                                                                                                                                                                                                                                                                                                                                                                                                         1159.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="MGD:MGI:1197010"
/db_xref="MGD:MGI:1893665"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /strain="C57BL/6J"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="2510040N03"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      location/Qualifiers
                                                                                                                                                                                          51.3%;
                                                                                                                                                                                                                                                                                                                               213 c
                                                                                                                                                   Score 751.2; DB 192; Length LIDV; Pred. No. 1.8e-148; O; Mismatches 153; Indels 32; Gaps
                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Research Group in Riken
```

11;

Qy

망 Q 뫄 δÃ 망 δÃ

밁

Qy 밁 Qy Вb Qy Дb δÃ

В

В

1149 GCTTCATTAAAATAAACAATATTTGTAAAA 1178

```
δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                              γ
                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                      ğ
                                                                                                                                                                                                                                                                    망
                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                 몽
                                                                  Ş
                                                                                                 밁
                                                                                                                         Ωy
                                                                                                                                                      B
             Ş
                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       182
1130 gcttcattaaaataaacaatatttgtcaaa 1159
                                         1089 TGATTCTGTTTGTACTTTTTGGCCTGGGACATGGGTTTTCAAGGGACATCGTCTGTACCA 1148
                                                                                                1034 CAGCAGTTATTAATAAAGTTACTCATACAGAAGTGTACGCAACAGA-----CACTGCTTT
                                                                                                                               1013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 618
                                                                                                                                                                                                                                                                                                                                                                                    737
                                                                                                                                                                                                                                                                                                                                                                                                                                         678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          88
                                                                                                                                                                                                                914
                                                                                                                                                                                                                                          893
                                                                                                                                                                                                                                                                       856
                                                                                                                                                                                                                                                                                                                            797
                                                                                                                                                                                                                                                                                                                                                        773
                                                                                                                                                         974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          acttgggggataagaagcaaggtgaatatattaaactcaaagtcattggacaggatagca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gtgagattcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcatact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTTGAAGGTCAGAGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTTAGGCGATAAGAAGGAAGGAATACATTAAACTCAAAGTTATTGGACAGGATAGCA
                                                                                                                                                                                                                                                                                                                                                                                             gactttccaattggccctgatgttcagcatgtgattacttcactcctggactgtgacttt 772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AATACTGCCCTTTTTCCTTTAAGAGATTTCATGTGTGCACAGAGAGGCCACCCTTTTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATATTCATTATTGGTTGTTTTTGTTGTGCTGATTTTTGGTGATCAGACCTCAGCTCCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ttattcattattgttttgttttcattgtgctgatttttggtgatcaagcctcagtcccctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gaattgaaaactggcacccatctctttgaaacatctggtaatttgaattctagtgctca 535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGGAACAAACGGGGGTCACTCGACGGTTTAGATAATTCTTTTTATTTTTATTTTTCCT 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGATAATCATACTCCGAAAGAACTGGGAATGGAAGAAGAAGATGTGAAGTTTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                        gacattgcattttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataat 712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAATTGAATACTGGCACTCCATCTTTAGAA-----CATATGAATTCTAGTGTTCA
                                                                                                                 tagca---attaataaagctatacatgcagaaatgaatacaacagaacactgctcttttt 1069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         catattaccctctcctttttaa---aaattacgtgtgcacagagaggtcaccttttcag
                                                           agattttatttgtactttttggcctgggatatgggttttaaatggacattgtctgtacca 1129
                                                                                                                                                         CAAGATGACAGATACAGTGAGAGCAACAGCTAACTCCAAAGGTGGCTTCACTGGAGAGAA 973
                                                                                                                                                                                                                            caagatgacagataaggtgagagtaatgactaactccaaagatggcttcactgaagaaaa 952
                                                                                                                                                                                                                                                                     {\tt TGAAGCTACTTTAAAATCTGCGGGTCTGGACCAAAAGAAGAACATCAT--GTTTGTAGT}
                                                                                                                                                                                                                                                                                              tgaagctacttttaaaatttgagggtctggaccaaaagaagaggaatatcaggttgaagt 892
                                                                                                                                                                                                                                                                                                                             CAGTGGGAGATGGAAATTTTTCAGAGAACTGAACTGTGG-AAAATGACCTTTCCTCAGCT
                                                                                                                                                                                                                                                                                                                                         cagtgggagatggaagtttttcagagaactgaactgtggaaaaaatgacctttccttaact 832
                                                                                                                                                                                                                                                                                                                                                                                  ACCTTTCAATTGGCTCTGAAGTTCCAGCATGTGGTTGCTTCACTCCTGGACTGTGATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                        GACTGTGCATTTTCAGGTTTGTGATGATAAA-AAGATCGACCAATGGGAGCTTTCCTATG
                                                                                                                                                                                    ggcattttaagattttttaaaaatcttgtcagaagatcccagaaagttctaattttcat 1012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   557
                                                                                                                                                                                                                                                                                                                                  855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      677
                                                                                                       1088
                                                                                                                                                                                                                                                                            913
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AL532393/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCUS
                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                         ₽
                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                     20
                                                                                                                                           밁
                                                                                                                                                                            Qy
                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
 В
                              Š
                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                      184 gagattcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcatactgt 243
                                                                                                                                                                                                                  823 GATAATCATACTCCAAAAAGAACTGGGAATGGAGGAAGAAGATGTGATTGAAGWTTATCA
                                                                                                                                                                                                                                                                                                            244 caaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattgct 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                      y Match 50.3%;
Local Similarity 87.0%;
483 aaactggcaccccatctctttgaaacatctggtaatttgaattctagtgctcattattca 542
                                                                                                                                             caatccttttttatttttaaaaatagttcttttgtaatgtggtgttcaaaacggaattga 482
                                                                                                                                                                            CAAAGACAGGGTGTCCCCAATGAATMCACTCAGGTGTCTCTTTGAGGGGTCAGAGAATTGCT
                                                                                                                                                                                                                                                                                                                                                                 CAATCCTTTTTATTTTAAAAATAGTTC-TTTGNAANGNGGNGNNCAAAACGGAANNGA
                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 943)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          prime, mRNA sequence. AL532393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Li,W.B., Gruber,C., Jessee,J. and Polayes,D. Full-length cDNA libraries and normalization Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AL532393 LTI_NFL001_NBC4 Homo sapiens cDNA clone CS0DM014YH24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AL532393.1 GI:12795886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Genoscope - Centre National de Sequencage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     199 a
                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   segref@genoscope.cns.fr, Web : www.genoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      91006 EVRY cedex - France
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cloned into the Not I and Eco RV sites of the pCMVSPORT 6 vector. Library was normalized. Library was constructed by Life Technologies. Contact: Feng Liang Life Technologies, a division of Invitrogen 9800 Medical Center Drive Rockville, Maryland 20850, USA Fax: (1) 301 610 8371 Email: fliang@lifetech.com URL: http://fulllength.invitrogen.com http://fulllength.invitrogen.com 185 c 187 g 294 t 78 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="Organ: brain; Vector: pCMVSPORT 6; 1st strand cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-stranded cDNA was digested with Not I and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               enriched, double-stranded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /tissue_type="neuroblastoma cells"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="LTI_NFL001_NBC4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone="CS0DM014YH24"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  943 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>ة</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 737; DB 106;
Pred. No. 1.7e-145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches 111;
                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      943;
                                                                                                                                                                                                                                                                                                                                                                                                                                                6
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                             884
                                                                                                                                                                                                                                                                                                      824
           586
                                                                                  646
                                                                                                                                                       705
                                                                                                                                                                                                                               764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ω
```

```
FEATURES
                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                               VERSION
                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                        BG169405
                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                             AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                      ORGANISM
                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tactttttggcctgggatatgggttttaaatggacattgtctgtacc 1128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ataaagctatacatgcagaaatgaatacaacagaacactgctctttttagattttatttg 1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              agattttttaaaaatcttgtcagaagatcccagaaaagttctaattttcattagcaatta 102:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTTAAAATTTGAGGGNCTGGACCAAAAGAAGAAGAATANCAGGTTGAAGTCAAGATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TACTTTTTGGCCTGGGATATGGGTTTTAAATGGACATTKTCTGTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATAAAGCTATACATGCAGAAATGAATACAACAGAACACTGCTCTTTTT-GATTTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGATTTTTAAAAATCTTGTCAGAAGAACCCCAGAAAAGTTCTAATTTTCATTAGCAATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ttttaaaatttgagggtctggaccaaaagaagaggaatatcaggttgaagtcaagatgac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ANGGAAR-ANNACAGAGAACTGAACTGTGGAAAAANGACCTTTCCTTAACTTGAAGCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          atggaagtttttcagagaactgaactgtggaaaaatgacctttccttaacttgaagctac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ttggccctgatgttc-agcatgtgattacttcactcctggactgtgactttcagtgggag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TNNCAGGCTNGTGGNGANAAATAAGACCGACCAACGCAAGTGCCCACAACGACNNCCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttccaa 722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NNANCGCCCGNNCNCACCGCGCCGATTCCNGGGGANCAAGCCCCCAGNCCCCCCCCANANNA 526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ttattgttttgttttcattgtgctgattttttggtgatcaagcctcagtccccttcatatta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NNGGCCCNGANGTNCNAGCANGTGATNACNNCACTCCNGGACNGTGACTNNCAGNGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCCCCCCCCAAAAANCACGCGGGCACAGAGAGGGCACCTTTTNCAGGACANGGCAT 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ccctctcctttttaaaaattacgtgtgcacagagaggtcacctttttcaggacattgcat
                                                                    found through the I.M.A.G.E. Consortium/LINL http://image.linl.gov Plate: LLAM10187 row: h column: 20
                                                                                                                                                                          Contact: Robert Strausberg, Ph.D. Email: cgapbs-r@mail.nih.gov Tissue Procurement: ATCC
                                                                                                                                                                                                                                  National Institutes of Health, Mammalian Gene Collection
                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 1166)
                                                                                                                                                                                                                                                                                                                                                                                                BG169405 1166 bp mRNA EST 06-FEB-2001 602320976F1 NIH_MGC_89 Homo sapiens cDNA clone IMAGE:4424131 5',
                                                                                                                                                                                                                            Unpublished (1999)
                                                                                                                                                                                                                                                     NIH-MGC http://mgc.nci.nih.gov/
                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                             BG16940
                                                                                                                                                                                                                                                                                                                                                                                          mRNA sequence.
                                                                                                             CDNA Library Preparation: Life Technologies, Inc. cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Incyte Genomics, Inc. Clone distribution: MGC clone distribution information can
                                                                                                                                                                                                                                                                                                                                                             BG169405.1 GI:12676108
                                                          quality sequence stop:
/organism="Homo sapiens"
/db_xref="taxon:9606"
                              Location/Qualifiers
1. .1166
                                                          672.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                406
                                                                                                                be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          287
                                                                                          20
       DЬ
                                  Qy
                                                                                                                           DЬ
                                                                                                                                                      οy
                                                                                                                                                                                      Дb
                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                         δÃ
                                                                                                                                                                                                                                                                                                       DЬ
                                                                                                                                                                                                                                                                                                                                    QY
                                                                                                                                                                                                                                                                                                                                                                  Db
                                                                                                                                                                                                                                                                                                                                                                                             ρ
                                                                                                                                                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                      QV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Dр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
```

```
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 859;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
782 GGGACACGGACAGGTTTCACGAGAACTGCCCGGGGGACAAAGGACCTTTCCTAAACTTGA
                                                    779
                                                                                               722
                                                                                                                                                                                   662
                                                                                                                                                                                                                            664
                                                                                                                                                                                                                                                                       602
                                                                                                                                                                                                                                                                                                                604
                                                                                                                                                                                                                                                                                                                                                         542
                                                                                                                                                                                                                                                                                                                                                                                                                                             482
                                                                                                                                                                                                                                                                                                                                                                                                  544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62 CCCCCGGGTGAAGCCACCGTCATCATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4 gaaggatttgtaaaccccggaggggggggttctgcttacccgagggccgctgctgtgcggaga 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Toca1
                                                                                                             attggccct--gatgttcagcatgtgatt-acttcactcctggactgtgactttcagtgg
                        gaga---tggaagtttttcagagaactgaactgtggaaaaatgacctttccttaacttg-
                                                                                                                                                                                                     ttcaggcttgtggtgataaat--aagatcgaccaatgcaagtgttcataatgactttcca
                                                                                                                                                                                                                                                                                cctctcctttttaaaaattacgtgtgcacagagaggtcacctttttcaggacattgcatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                          aactggcaccccatctctttgaaacatctggtaatttgaattctagtggctcattattcat 543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          aatcettttttaattttaaaaaatagttettttgtaatgtggtgttcaaaacggaattgaa
                                                                                      ATTGGGCCTCGATGTTCTAGCATGTGATTAACTTCAATCCCGGACTGTGAACCTTCAGGC
                                                                                                                                                                        TTCAGGCTTGTGGTGATCCATTAAGCATCGACAATGCCAAGTGTTCATTAAGACTTTCCA
                                                                                                                                                                                                                                                              CCTCTCCTTTTTAAAAATTACGTGTGCACAGAGAGGTCACCTTTTTCAGGACATTGCATT
                                                                                                                                                                                                                                                                                                                                                TATTGTTCGTTTTCATTGTGCTGATTTTGGGTGATCAAGCCTCAGTCCCCTTCATATTAC
                                                                                                                                                                                                                                                                                                                                                                      tattgtttgttttcattgtgctgatttttggtgatcaagcctcagtcccctttcatattac 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AATCCTTTTTATTTTTAAAAATAGTTCTTTTGTAATGTGGTGTTCAAAACGGAATTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                 AACTGGCACCCCATCTCTTTGAAACATCTGGTAATTTGAATTCTAGTGCTCATTATTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGAAGATGTGATTGAAGTTTATCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gataatcatactccaaaagaactgggaatggaggaagaagatgtgattgaagtttatcag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Caaagacagggtgttccaatgaattcactcaggtttctctttgagggtcagagaattgct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGATTCACTTCAAAGTGAAAATGACAACACATCTCAAAGAAACTCAAAGAATCATACTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTGGGGGATAAGAAGGAAGGTGAATATATTAAACTCAAAGTCATTGGACAGGATAGCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ttgggggataagaagcaaggtgaatattataactcaaagtcattggacaggatagcagt 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGTCAGAGAATTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gagattcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcattattgt 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cccccgggtgaagccaccgtcatcatgtctgaccaggaggcaaaaccttcaactgaggac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAAGGATTTGTAAACCCCGGAGCGAGGTTCTGCTTACCCGAGGCCGCTGCTGTGCGGAGA 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone="IMAGE:4424131"
/clone_lib="NIH_MGC_89"
/tissue_type="hypernephroma, cell line"
/lab_host="DHIOB (phage-resistant)"
/note="Organ: kidney; Vector: pCMV-SPORT6; Site_1: NotI; Site_2: SalI; Cloned unidirectionally; Oligo-dT primed. Average insert size 1.3 kb. Library enriched for full-length clones and constructed by Life Technologies. Note: this is a NIH_MGC Library."

Note: this is a NIH_MGC Library."

1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        50.1%;
87.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 734; DB 174;
Pred. No. 7.5e-145;
0; Mismatches 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 1166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                            661
                                                                                                                                                                                                                                                                                                       663
                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
```

```
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   БР
   밁
                                                        δÃ
                                                                                                                                     밁
                                                                                                                                                                                             ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BG540101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
TITLE
                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             835 aagctacttttaaaatttgagggtctggaccaaaagaagaggaatatcaggttgaagtca 894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          842 AAGGAACTTTTTAAGATTGGGGGGGTGTGAGCAAGAAAGGGGGGAATTCGGGGGGAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      962 GATGTAGAAATTTATAAA 979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               955 cattttaagatttttaa 972
                                                                      62
       77
                                                                                                                                        17
                                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                    N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               agatgacagataaggtgagagtaatgactaactccaaaggatggcttcactgaagaaaagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGAAGATAAGAAAGGGGTGGAGAATAAGGTAAATAACCAAGAGGGGTTAGTCGGAACAGG
gggaaggatttgtaaaccccggagcgaggttctgcttacccgaggccgctgctgtgcgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BG540101 804 bp mRNA EST 03-APR-2001 602568937F1 NIH_MGC_77 Homo sapiens cDNA clone IMAGE:4693352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: CLONTECH Laboratories,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BG540101.1 GI:13532334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDNA Library Preparation: CLONTECH Laboratories, Inc. CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Incyte Genomics, Inc. Clone distribution: MGC clone distribution information can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             late: LLCM1515 row: j column: 09 igh quality sequence stop: 785.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 804)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           227
                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone_1ib="NAGE_4693352"
/clone_1ib="NIH_MGC_77"
/lab_host="DH10B (T1 phage-resistant)"
/lab_host="DH10B (Clontech); Site_1:
/lab_host="DH10B (Clont
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . 804
                                                                                                                                                                                                                                                                                                         50.0%;
98.3%;
                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                      Score 732; DB 155;
Pred. No. 1.9e-144;
                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                  Length 804;
                                                                                                                                                                                                                                                                          ω,-
                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             901
                                                                                                                                        76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ú
                                                                                                                                                                                                                                                                             Ψ
```

```
Ъ
                                                                                                                                                                                                                                                                                                                                  δÃ
                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                   QY
                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                               δõ
                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                    Q
                                                                                                                                        В
                                                                                                                                                      QY
                                                                                                                                                                          밁
                                                                                                                                                                                         δÃ
                                                                                                                                                                                                             В
                                                                                                                                                                                                                                              B
                                                Qγ
                                                                    В
                                                                                   δÃ
                                                                                                      밁
멍
               δõ
                                  밁
                                                                                                       617
                                                                                                                       602
                                                                                                                                        557
                                                                                                                                                                          497
                                                                                                                                                                                           482
                                                                                                                                                                                                             437
                                                                                                                                                                                                                             422
                                                                                                                                                                                                                                               377
                                                                                                                                                                                                                                                                362
                                                                                                                                                                                                                                                                                 317
                                                                                                                                                                                                                                                                                                   302
                                                                                                                                                                                                                                                                                                                    257
                                                                                                                                                                                                                                                                                                                                    242
                                                                                                                                                                                                                                                                                                                                                     197
                                                                                                                                                                                                                                                                                                                                                                       182
                                                                                                                                                                                                                                                                                                                                                                                      677
                                                                                     662
                                                                                                                                                         542
797
                                  737
                                                  721
                                                                                                                                                                        toaatcettttttatttttaaaaatagttettttgtaatgtggtgttcaaaaegggaattg
                                                                                                                                                                                                                                              gtgagattcacttcaaagtgaaaatgacaacacatctcaagaaactcaaagaatcatact
                                 gtcaaagacagggtgttccaatgaattcactcaggtttctcttttgagggtcagagaattg
                gaga 782
                                                                             tttcaggcttgtggtgataaataagatcgaccaatgcaagtgttcataatgactttcc-
                                                                                                               accetetecetttttaaaaattaegtgtgeacagagaggteaecttttteaggaeattgea
                                                                                                                                         ATTATGGTTTGTTTTCATTGTGCTGATCCTTGGTGATCAAGCCTCAGTCCCCTTCATATT
                                                                                                                                                 attattgtttgttttcattgtgctgatttttggttgatcaagcctcagtccccttcatatt
                                                                                                                                                                                                                                                                                 CTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGAAGATGTGATTGAAGTTTATC
                                                                                                                                                                                                                                                                                        GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGTCAGAGAATTG
                                                                    TTTTCAGGCTTGTGGTGATAAATAAGATCGACCAATGCAAGGTGTCATAATGACTTTCCA 736
                                                                                                      ACCCTCTCTTTTTAAAAATTACGTGTGCACAGAGAGGTCACCTTTTTCAGGACATTGCA
                                                                                                                                                                                                                                                436
                                                                                                                        661
                                                                                                                                          616
                                                                                                                                                           601
                                                                                                                                                                            556
                                                                                                                                                                                             541
                                                                                                                                                                                                               496
                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                        256
                                                                                                                                                                                                                                                                                                                                                                                          196
```

Search completed: August 15, 2001, 16:12:28 Job time: 3239 sec

Compugen Ltd

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
       Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq length:
seq length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Issued_Patents_AA:*
1: /cgn2_6/ptodata/2,
2: /cgn2_6/ptodata/2,
3: /cgn2_6/ptodata/2,
4: /cgn2_6/ptodata/2,
5: /cgn2_6/ptodata/2,
6: /cgn2_6/ptodata/2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query
Match Length
     US-09-484-964-2
525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            August 15, 2001, 16:36:04; Search time 72.32 Seconds (without alignments) 28.756 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        197339 seqs, 20590346 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GenCore version 4.5
Copyright (c) 1993 - 2000 Comp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MSDQEAKPSTEDLGDKKQGE.....MEEEDVIEVYQEQTGGHSTV 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /cgn2_6/ptodata/2/iaa/5A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/PCTUS_COMB.pep:*
/cgn2_6/ptodata/2/iaa/backfiles1.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000000000
     DΒ
2 US-08-853-974-3

US-09-172-988-3

US-09-172-988-1

US-09-172-988-1

US-09-192-611-2

US-08-755-584-2

US-08-759-684-3

US-08-799-177-35

US-08-799-177-35

US-08-799-177-35

US-08-799-177-35

US-08-799-177-35

US-08-799-177-35

US-08-799-178-3

US-08-799-178-3

US-08-799-169A-3

US-08-790-060-2

US-08-937-746-8

PCT-US-9-340-154-94

US-08-91-91-201-9

US-08-771-201-9

US-08-771-201-9

US-08-771-201-9

US-08-771-201-9

US-08-771-201-9

US-08-834-306-41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Description
                                                                                                                                                                                                                                                                                                          Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
Sequence
Sequence
                     Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                        Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                     Sequence
Sequence
 3 Appli

1 Appli

2 Appli

2 Appli

3 Appli

4 Appli

5 Appli

6 Appli

6 Appli

6 Appli

7 Appli

8 Appli

8 Appli

9 A
```

FO HA 1 1 SO 17	CURRENT APPLICATION DATA:  APPLICATION NUMBER: US/08/853,974  FILING DATE: Filed Herewith  PRIOR APPLICATION DATA:  APPLICATION NUMBER:  FILING DATE:  FILING DATE:  ATTORNEY/AGENT INFORMATION:  NAME: Billings, Lucy J.  REGISTRATION NUMBER: PF-0289 US  REFERENCE/DOCKET NUMBER: PF-0289 US  TELEPOMMUNICATION INFORMATION:  TELEPHONE: 415-855-0555  TELEPAX: 415-854-4166	4-3 5840534 SPANATION: WE HILLMAN, WIT: USA MIT: USA MIT: USA MIT: Disk MIT: Disk MIT: DISK MIT: HILLMAN, WIT: HIL	28 73 13.9 128 4 US-O8-993-674A-41 29 73 13.9 147 2 US-O8-993-771-201-11 30 73 13.9 156 2 US-O9-070-060-7 31 73 13.9 156 3 US-O9-051-969A-3 32 73 13.9 156 3 US-O9-051-969A-3 33 73 13.9 156 3 US-O9-051-969A-3 34 73 13.9 229 2 US-O8-726-306A-23 35 73 13.9 229 3 US-O8-840-146-20 36 73 13.9 229 3 US-O8-840-220-20 37 73 13.9 229 3 US-O8-80-220-20 38 73 13.9 13.9 121 1 US-O8-05-002C-2 40 73 13.9 1121 1 US-O8-05-002C-2 41 71 13.5 76 1 US-O8-05-002C-2 42 71 13.5 76 1 US-O8-467-0834-6 43 71 13.5 533 1 US-O8-746-822-2 45 71 13.5 533 3 US-O8-746-822-2 45 71 13.5 533 3 US-O9-094-350-2
			Sequence 41, Appl Sequence 71, Appli Sequence 7, Appli Sequence 3, Appli Sequence 4, Appli Sequence 20, Appli Sequence 20, Appli Sequence 20, Appli Sequence 2, Appli

Query Match Best Local Similarity

Matches

Conservative

42.6%; Score 223.5; DB 2 51.2%; Pred. No. 4.2e-19; tive 14; Mismatches 25

DB 2;

Length 104; Indels

Gaps

1:

```
US-08-853-974-1
; Sequence 1, Application US/08853974
; Patent No. 5840534
                                                                                                                      밁
                                                                                                                                                    δÃ
                                                                                                                                                                                        В
                                                                                                                                                                                                                     QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20
                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                US-09-172-988-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 2
US-09-172-988-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 3, Application US/09172988 Patent No. 6136955
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION FOR SEQ ID NO: 3:
                                                                                                                                                                                                                                                                                                                                                               IMMEDIATE SOURCE:
LIBRARY: GenBank
CLONE: 1707372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE/DOCKET NUMBER: PF-
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415-855-0555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
NAME: Billings, Lucy J.
REGISTRATION NUMBER: 36,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION DATA: APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: HUMAN SMT3-LIKE PROTEIN NUMBER OF SEQUENCES: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Hillman, Je
APPLICANT: Shah, Purvi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET: 3174 Por
CITY: Palo Alto
                                                                                                                    68 RAEQTPDELDMEDGDEIDAMLHQTGG 93
                                                                                                                                                    72 ADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                       15 DKKQGE---YIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRI 71
                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: Incyte Pharmaceuticals, Inc. STREET: 3174 Porter Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              68 RAEQTPDELDMEDGDEIDAMLHQTGG 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              72 ADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH:
                                                                                                                                                                                          œ
                                                                                                                                                                                      DKKPGDGGAHINLKVKGQDGNEVFFRIKRSTQLKKLMNAYCDRQSVDMNSIAFLFDGRRL 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DKKQGE---YIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRI 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DKKPGDGGAHINLKVKGQDGNEVFFRIKRSTQLKKLMNAYCDRQSVDMNSIAFLFDGRRL
                                                                                                                                                                                                                                                          44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    94304
                                                                                                                                                                                                                                                                                                                                                                                                                                                   amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                            104 amino acids
                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       415-845-4166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hillman, Jennifer L.
                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Diskette
                                                                                                                                                                                                                                                         42.6%; Score 223.5; DB (51.2%; Pred. No. 4.2e-19) ative 14; Mismatches 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US/08/853,974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/09/172,988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    36,749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PF-0289 US
                                                                                                                                                                                                                                                                                            DB 4;
                                                                                                                                                                                                                                                                                           Length 104;
                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                         ω,.
                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  67
                                                                                                                                                                                                                                                          1;
                                                                                                                                                                                                                                                                                                                                                               DЬ
                                                                                                                                                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                 DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy
```

```
RESULT 4
US-09-172-988-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-853-974-1
                                                                                                                                                                                                                                                                                     Sequence 1, Application US/09172988 Patent No. 6136955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 41.3%; Score 217; DB 2; Best Local Similarity 44.9%; Pred. No. 3.1e-18; Matches 44; Conservative 20; Mismatches 28
                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO:
                                                                        STREET: 31.
CITY: Palo Alto
CTATE: CA
             COMPUTER READABLE FORM:
MEDIUM TYPE: Diskett
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION:
NAME: Billings, Lucy J.
REGISTRATION NUMBER: 36,749
                                                                                                                                                                                                                            APPLICANT: Hillman, Jennifer L. APPLICANT: Shah, Purvi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELECOMMUNICATION INFORMATION: TELEPHONE: 415-855-0555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version
CURRENT APPLICATION DATA:
                                                                                                                                                                 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                      NUMBER OF SEQUENCES:
                                                                                                                                                                                                        TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Hillman, Jennifer L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                     COUNTRY: UZIP: 94304
COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                      61 SLRFLFEGQRIADNHTPKELGMEEEDVIEVY-QEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LIBRARY: LUNGF
CLONE: 2361410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/08/8 FILING DATE: Filed Herewith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STREET: 3174 POI CITY: Palo Alto
                                                                                                                                                 ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                   56 QIRFRFDGQPINETDTPAQLEMEDEDTIDVFPSSKTGG 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MSEEKPKE-----GVKTENDHINLKVAGQDGSVVQFKIKRHTPLSKLMKAYCERQGLSMR 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CA
                                                                                                                             3174 Porter Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            126 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3174 Porter Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LUNGFET03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       415-845-4166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Shah, Purvi
IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                 Incyte Pharmaceuticals, Inc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Incyte Pharmaceuticals, Inc
                 Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HUMAN SMT3-LIKE PROTEIN
                                                                                                                                                                                                          HUMAN SMT3-LIKE PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US/08/853,974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PF-0289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6;
```

Gaps

2

```
US-08-755-584-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-172-988-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 2, Application US/08755584 Patent No. 5858711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 41.3%;
Best Local Similarity 44.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
APPLICANT: Glimcher, Laurie
APPLICANT: Hodge, Martin R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: 415-845-4166 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION:
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                           COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARB: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 State Street, suite 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE CHARACTERISTICS:
LENGTH: 126 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELECOMMUNICATION INFORMATION: TELEPHONE: 415-855-0555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                ATTORNEY/AGENT INFORMATION:
NAME: Giulio A. DeConti, Jr
REGISTRATION NUMBER: 31,503
                                                                                            CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/853,974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MMEDIAL LUNG
LIBRARY: LUNG
TONE: 2361410
                                                                                                                                                                                                                                                                                                                   COUNTRY: USA
ZIP: 02109-1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Billings, Lucy J.
REGISTRATION NUMBER: 36,749
                                                                                                                                                          FILING DATE:
                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                        STATE:
                                                                                                                                                                                                                                                                                                                                                                             CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                56 QIRFRFDGQPINETDTPAQLEMEDEDTIDVFPSSKTGG 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61 SLRFLFEGQRIADNHTPKELGMEEEDVIEVY-QEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE/DOCKET NUMBER:
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MSEEKPKE-----GVKTENDHINLKVAGQDGSVVQFKIKRHTPLSKLMKAYCERQGLSMR 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMN 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              amino acid
                                                                                                                                                                                                                                                                                                                                                          Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Glimcher, Laurie H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LUNGFET 03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NF-AT-INTERACTING PROTEIN NIP45 AND METHODS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US/09/172,988
                                                                                                                                                                             US/08/755,584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20; Mismatches
HUI-026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 217; DB 4; Length 126; Pred. No. 3.1e-18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PF-0289 US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2
```

```
; MOLECULE TYPE: protein US-09-192-611-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-192-611-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; MOLECULE TYPE: protein US-08-755-584-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 2, Application US/09192611 Patent No. 6090561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
APPLICANT: Glincher, Laurie H.
APPLICANT: Hodge, Martin R.
APPLICANT: Hodge, Martin R.
TITLE OF INVENTION: NF-AT-INTERACTING PROTEIN NIP45 AND METHODS
TITLE OF INVENTION: OF USE THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)227-7400
TELEPAX: (617)227-5941
INFORMATION FOR SEQ ID NO: 2:
                                                                                                              INFORMATION FOR SEQ ID NO:
                                                                                                                                                                 REGISTRATION NUMBER: 31,503
REFERENCE/DOCKET NUMBER: HU
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                       SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                       ATTORNEY/AGENT INFORMATION:
NAME: Giulio A. DeConti,
                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: PatentIn Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        310 ATPSTLKLGVADIIDCVVLASSSEATETSQELRLRVQGKEKHQMLEISLSPDSPLKVLMS 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                370 HYEEAMGLSGHKLSFFFDGTKLSGKELPADLGLESGDLIEVW 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: amino acid TOPOLOGY: linear
                                    TOPOLOGY:
                                                          TYPE:
                                                                                                                                TELEFAX:
                                                                                                                                                                                                                                                                                                                    CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 50 SYCOROGVPMNSLRFLFEGORIADNHTPKELGMEEEDVIEVY 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
nes 26; Conserv
                                                                                                                                             TELEPHONE:
                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US/09/192,611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH:
                                                                     LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6 AKPSTEDLG-------DKKQGEYIKLKVIGQDSSE-IHFKVKMTTHLKKLKE 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       02109-1875
                                                      amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Massachusetts
                                                                                                          E: (617)227-7400
(617)227-5941
FOR SEQ ID NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     412 amino acids
                                                                       412 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60 State Street, suite 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LAHIVE & COCKFIELD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19.2%;
                                                                                                                                                                                                                                                                               US/08/755,584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22; Mismatches 38
                                                                                                                                                                                      HUI-026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 412;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2;
```

Query Match
Best Local Similarity
Matches 26; Conserv

Conservative

19.2%; Score 101; DB 3; 25.5%; Pred. No. 0.00057; tive 22; Mismatches 38

DB 3; Length 412; 38;

Indels

16;

Gaps

'n

```
PCT-US95-09377-2
; Sequence 2, Application PC/TUS9509377
; GENERAL INFORMATION:
                                                                                                                                                                   Qy
                                                                                                                                                                                                           В
                                                                                                                                                                                                                                               δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                     US-08-854-764-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-854-764-2
                                                                       RESULT
                                                                                                                                                                                                                                                                                 Query Match 14.5
Best Local Similarity 21.2
Matches 14; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 2, Application US/08854764 Patent No. 6103500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
APPLICANT: Innes, Michael
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: 510-655-3542
INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REGISTRATION NUMBER: 36,914
REFERENCE/DOCKET NUMBER: 09
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Innes, Michael
APPLICANT: Creasey, Abla
TITLE OF INVENTION: Production of Tissue Factor Pathway
TITLE OF INVENTION: Inhibitor
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                     MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 08/286,530
FILING DATE: 05-AUG-1994
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn Release #1.0, Version #1.30B CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     370 HYEEAMGLSGHKLSFFFDGTKLSGKELPADLGLESGDLIEVW 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 310 ATPSTLKLGVADIIDCVVLASSSEATETSQELRLRVQGKEKHQMLEISLSPDSPLKVLMS 369
                                                                                                                                 73 LRGGDS 78
                                                                                                                                                                     94 QTGGHS 99
                                                                                                                                                                                                           13 ITLEVESSDTIDNVKSKIQDKEGIPPDQQRLIFAGKQLEDGRTLSDYNIQKESTLHLVLR 72
                                                                                                                                                                                                                                               34 IHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQE 93
                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: FILING DATE: 12-MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY: UZIP: 94608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: Emeryville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           50 SYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVY 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AKPSTEDLG------DKKQGEYIKLKVIGQDSSE-IHFKVKMTTHLKKLKE 49
                                                                                                                                                                                                                                                                                                                                                                                                                                       amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Savereide, Paul B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E: Chiron Corporation 4560 Horton St.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             352 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   510-601-2585
510-655-3542
CHIRON CORPORATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12-MAY-1997
                                                                                                                                                                                                                                                                                                   14.5%; Score 76; DB 3 21.2%; Pred. No. 0.39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US/08/854,764
                                                                                                                                                                                                                                                                                       19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0991.001
                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                       DB 3; Length 352;
                                                                                                                                                                                                                                                                                       ω
3
                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                     0
```

```
US-08-350-884-35
; Sequence 35, Application US/08350884
; Patent No. 5585258
                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PCT-US95-09377-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: 510-655-3542
INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                                                                   APPLICANT: HOUGHTON,
APPLICANT: KUO, GEORG
APPLICANT: KUO, GEORG
TITLE OF INVENTION: I
NUMBER OF SEQUENCES:
                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: DC-DOS/MS-DOS
COMPUTER: PC-DOS/MS-DOS
              SOFTWARE: PatentIn Rel
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn Release #1.0, Version #1.30B CURRENT APPLICATION DATA: APPLICATION NUMBER: PCT/US95/09377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ZIP: 94608
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET: 4500
CTTY: Emeryville
                                                                                                                                                                  STREET: 755 Page
CITY: Palo Alto
STATE: Californ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13
                                                                                                                                COUNTRY: USA
ZIP: 94304-1018
                                                                                                                                                                                                   ADDRESSEE: MORRISON & FOERSTER STREET: 755 Page Mill Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                           73 LRGGDS 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           94 QTGGHS 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          34 IHFKVKMTTHLKKLKESYCOROGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQE 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Savereide, Paul B. REGISTRATION NUMBER: 36,914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 2
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ITLEVESSDTIDNVKSKIQDKEGIPPDQQRLIFAGKQLEDGRTLSDYNIQKESTLHLVLR 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            amino acids
                                                                                                                                                                     California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4560 Horton St
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   510-655-3542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                       CHOO, QUI LIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                 PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   510-601-2585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chiron Corporation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25-JULY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Floppy disk
 06-DEC-1994
                                                                                                                                                                                                                                                                                      GEORGE
                                                                                                                                                                                                                                                                      HEPATITIS C VIRUS PROTEASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14.5%;
21.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Production of Tissue Factor Pathway
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Inhibitor
                                                                                                                                                                                                                                                                                                      LIM
               us/08/350,884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 76; DB 5; Length 352
Pred. No. 0.39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0991.100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
```

CLASSIFICATION: 435
PRIOR APPLICATION DATA:

us 07/680,296

```
RESULT 10
US-08-709-173-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; SEQUENCE CHARACTERISTICS:
; LENGTH: 75 amino acids
; TYPE: amino acid
STRANDEDNESS: single
; TOPOLLOGY: linear
US-08-350-884-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 35, Application US/08709173 Patent No. 5712145 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
13.9%; Score 73; DB 1
Best Local Similarity 20.3%; Pred. No. 0.12;
INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INFORMATION FOR SEQ ID NO:
                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/680,296
FILING DATE: 04 APR-1991
ATTORNEY/AGENT INFORMATION:
NAME: CLOTI, THOMAS E.
REGISTRATION NUMBER: 21,013
REFERENCE/DOCKET NUMBER: 22300-20:
                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: HOUGHTON, MICHAEL
APPLICANT: CHOO, QUI LIM
APPLICANT: KUO, GEORGE
TITLE OF INVENTION: HEPATITIS C VIRUS PROTEASE
NUMBER OF SEQUENCES: 86
                                                                                                                                                                                                                                                                                         CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
NAME: CIOTTI, THOMAS E.
                       TELEFAX: (*-
TEX: 706141
                                                                                       TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELECOMMUNICATION INFORMATION: TELEPHONE: (415) 813-5600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELLEFAX: (~_
TELEFAX: 706141
                                                                                                                                                                                                                                       APPLICATION NUMBER: FILING DATE: 06-SEI CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     34 IHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQE 93
                                                                                                                                                                                                                                                                                                             SOFTWARE: PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                            ZIP: 94304-1018
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: Palo Alto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    72 LRGG 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         94 QTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12 ITLEVESSDTIDNVKSKIQDKEGIPPDQQRLIFAGKQLEDGRTLSDYNIQKESTLHLVLR 71
                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REGISTRATION NUMBER: 21,013
REFERENCE/DOCKET NUMBER: 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US 0 FILING DATE: 04-APR-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CIOTTI, THOMAS E.
                                                                                                                                                                                                                                                                                                                                                                                                                                             California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            E: MORRISON & FOERSTER 755 Page Mill Road
                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                  : (415) 813-5600
(415) 494-0792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (415) 494-0792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                        06-SEP-1996
                                                                                                                                                                                                                                                                          US/08/709,173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            35:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19;
                                                                                                          22300-20100.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22300-20100.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 1; Length 75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
```

```
γ
     Вb
                                                                                                                                                          US-08-709-177-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 us-08-709-177-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-709-173-35
                                                                     Query Match
Best Local Similarity
Matches 13; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 35, Application US/08709177 Patent No. 5885799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                            TELEX: 706141
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STREET: ///
STREET: ///
CITY: Palo Alto
CTATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/680,296
FILING DATE: 04-APR-1991
                                                                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION: NAME: CIOTTI, THOMAS E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: PatentIn Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES: 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: CHOO, QUI L
APPLICANT: KUO, GEORGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: HEPATITIS C VIRUS PROTEASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                TELEPHONE: (415) 494-0792
12 ITLEVESSDTIDNVKSKIODKEGIPPDQQRLIFAGKQLEDGRTLSDYNIQKESTLHLVLR 71
                                34 IHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQE 93
                                                                                                                                                                                           TYPE: amino :
STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                  REGISTRATION NUMBER: 21,013
REFERENCE/DOCKET NUMBER: 22300-20100.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                  REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/08/709,177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12 ITLEVESSDTIDNVKSKIQDKEGIPPDQQRLIFAGKQLEDGRTLSDYNIQKESTLHLVLR 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 75 amino acids
TYPE: amino acid
TYPE: single
STRANDEDNESS: single
                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                            LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ZIP: 94304-1018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      72 LRGG 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         94 QTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         34 IHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQE 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           / Match 13.9%;
Local Similarity 20.3%;
hes 13; Conservative 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY:
                                                                                                                                                                                                         amino acid
                                                                                                                                                                                                                                                                                                                                                                                   CIOTTI, THOMAS E
                                                                                                                                                                                                                        75 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    755 Page Mill Road
                                                                      Conservative
                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HOUGHTON, MICHAEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MORRISON & FOERSTER
                                                                                                                                                                                                                                                                                                                 (415) 813-5600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          06-SEP-1996
                                                                                                                                                                                         single
                                                                                   13.9%; Score 73; DB 2; Length 75; 20.3%; Pred. No. 0.12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LIM
                                                                     19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 73; DB 1; Length 75; Pred. No. 0.12;
                                                                     Mismatches
                                                                     32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           32; Indels
                                                                     Indels
                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
```

δÃ

94 QTGG

HOUGHTON, MICHAEL

```
밁
              RESULT 13
US-08-529-169A-3
; Sequence 3, Application US/08529169A
; Patent No. 6194140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-833-678A-3
                                                                                                                                                                                  Q
                                                                                                                                                                                                                          Дb
                                                                                                                                                                                                                                                                                                                                                                                                            US-08-833-678A-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 3, Application US/08833678A Patent No. 5989905
                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                               Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/529,169
APPLICATION NUMBER: 15-SEP-1995
ATTORNEY/AGENT INFORMATION:
NAME: Harbin, Alisa A.
REGISTRATION NUMBER: 33,895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEX: n/a
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 75 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: HOUGHTON, MICHAEL
APPLICANT: CHOO, QUI-LIM
APPLICANT: HAN, JANG
APPLICANT: HAN, JANG
APPLICANT: HAN, JANG
TITLE OF INVENTION: HCV NS3 PROTEIN FRAGMENTS HAVING
TITLE OF INVENTION: HELICASE ACTIVITY AND IMPROVED SOLUBILITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: 01
TELECOMMUNICATION INFORMATION:
TELEPHONE: (510) 923-3274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                             y match
Local Similarity 20.3%; Pred. No. 0.12;
Les 13; Conservative 19; Mismatches 20. *-3-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        72 LRGG 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                    94 QTGG 97
                                                                                                                                                                                                                            12 ITLEVESSDTIDNVKSKIQDKEGIPPDQQRLIFAGKQLEDGRTLSDYNIQKESTLHLVLR 71
                                                                                                                                                                                                                                                                34 IHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQE 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE:
                                                                                                                                              72 LRGG 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/08/833,678A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               94662-8097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Emeryville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          E: CHIRON CORPORATION
Intellectual Property - R440, P.O. Box 8097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         : (510) 923-3274
(510) 655-3542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0100.005
                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                              0;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                     QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QΨ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; MOLECULE TYPE: protein US-08-529-169A-3
                                                                                                                                                                                                                                                                                                                                     RESULT 14
US-08-232-815-2
                                                                                                                                                                                                                                                                                               sequence 2, Application US/08232815
Patent No. 5503977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 13.9%; Score 73; DB 4
Best Local Similarity 20.3%; Pred. No. 0.12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEX: n/a
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 75 amino acids
                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STREET: LILCON CITY: Emeryville CTTY: California
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
NAME: Harbin, Alisa A.
REGISTRATION NUMBER: 33,895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: CHOE, JOONHO
TITLE OF INVENTION: HCV NS3 PROTEIN FRAGMENTS HAVING
TITLE OF INVENTION: HELICASE ACTIVITY AND IMPROVED SOLUBILITY
                                                                                                                                                                           TITLE OF INVENTION: SPLIT UBIQUITIN PROTEIN SENSOR NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                  APPLICANT: Johnsson, Nils
APPLICANT: Varshavsky, Alexander
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION: TELEPHONE: (510) 923-3274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION DATA:
                                                                                         STREET: P.O. Box 999
CITY: York Harbor
STATE: Mains
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY: U.S.A. ZIP: 94662-8097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12 ITLEVESSDTIDNVKSKIQDKEGIPPDQQRLIFAGKQLEDGRTLSDYNIQKESTLHLVLR 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             34 IHFKVKMTTHLKKLKESYCOROGVPMNSLRFLFEGORIADNHTPKELGMEEEDVIEVYQE 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: amino acid
STRANDEDNESS: sir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION: 4325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: FILING DATE: 15-SEP-
                                                            COUNTRY: USA
ZIP: 03911
                                                                                                                                                                                                                                                                                                                                                                                                                72 LRGG 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                       94 QTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Intellectual Property - R440, P.O. Box 8097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CHOO, QUI-LIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (510) 655-3542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHIRON CORPORATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15-SEP-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US/08/529,169A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0100.005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 4; Length 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
```

```
δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       us-08-350-906-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; MOLECULE TYPE: protein US-08-232-815-2
                                                                                                                   COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATEN
COMPUTER: IBM PC COMPATEN
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTION DATA:
APPLICATION NUMBER: US/08/350,906
FILING DATE: 07-DEC-1994
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Farrell, Kevin M
REGISTRATION NUMBER: 35,505
REFERENCE/DOCKET NUMBER: CIT-9303A
TELECOMMUNICATION 1000
TELEPHONE: 207 363-0558
TELEPHONE: 207 363-0558
TELEPHONE: 207 363-0528
TIMPORMATION FOR FEO 17 NO. 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE/DOCKET NUMBER: CIT-
TELECOMMUNICATION INFORMATION:
TELEPHONE: 207 363-0528
INFORMATION: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 76 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 13.9%; Score 73; DB 1; Length 76; Best Local Similarity 20.3%; Pred. No. 0.12; Matches 13; Conservative 19; Mismatches 32; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 2, Application US/08350906 Patent No. 5585245
                                                      TELEFAX: 207 363-0528
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 76 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
    MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Johnsson, Nils
APPLICANT: Varshavsky, Alexander
TITLE OF INVENTION: UBIQUITIN-BASED SPLIT PROTEIN SENSOR
NUMBER OF SEQUENCES:
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/232,815
FILING DATE: 22-APR-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
NAME: FAITPELL, Kevin M.
REGISTRATION NUMBER: 35,505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Revin M. Farrell
STREET: P.O. Box 999
CITY: York Harbor
STATE: Maine
                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      94 QTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13 ITLEVESSDTIDNVKSKIQDKEGIPPDQQRLIFAGKQLEDGRTLSDYNIQKESTLHLVLR 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           73 LRGG 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            34 IHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFBGQRIADNHTDKELGNEEEDDYIEVYQE 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  03911
                                        amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CIT-9303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
```

US-08-350-906-2

```
Query Match
Best Local Similarity 20.3%; Score 73; DB 1; Length 76;
Best Local Similarity 20.3%; Pred. No. 0.12;
Matches 13; Conservative 19; Mismatches 32; Indels 0; Gaps
Qy 34 IHFKVKMTTHLKKLKESYCOROGVPMNSLRFLFBGQRIADNHTDKELGMEEEDVIEVYQE 93
Li::::| ::| ::| ::| ::| 72
Db 13 ITLEVESSDTIDNVKSKIQDKEGIPPDQQRLIFAGKQLEDGRTLSDYNIQKESTLHLVLR 72
```

0

Qy 94 QTGG 97 || Db 73 LRGG 76

Search completed: August 15, 2001, 17:15:28 Job time: 2364 sec

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence:
                   10:
11:
12:
13:
14:
15:
16:
17:
18:
19:
20:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-484-964-2
525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              412676 seqs, 60623988 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MSDQEAKPSTEDLGDKKQGE.....MEEEDVIEVYQEQTGGHSTV 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          August 15, 2001, 16:16:34; Search time 63.2 Seconds (without alignments) 96.883 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A_Geneseq_0601:*
SIDS1/gcgdata/geneseq/yeneseqp/An198.DAT: *

SIDS1/gcgdata/geneseq/geneseqp/An198.DAT: *

SIDS1/gcgdata/geneseq/geneseqp/An198.DAT: *

SIDS1/gcgdata/geneseq/geneseqp/An198.DAT: *

SIDS1/gcgdata/geneseq/geneseqp/An198.DAT: *

SIDS1/gcgdata/geneseq/geneseqp/An198.DAT: *

SIDS1/gcgdata/geneseq/geneseqp/An198.DAT: *

SIDS1/gcgdata/geneseq/geneseqp/An199.DAT: *

SIDS1/gcgdata/geneseq/geneseqp/An2000.DAT: *

SIDS1/gcgdata/geneseq/geneseqp/An2000.DAT: *

SIDS1/gcgdata/geneseq/geneseqp/An2000.DAT: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /SIDSI/gcgdata/geneseq/geneseqp/aA1980_DAT:*
/SIDSI/gcgdata/geneseq/geneseqp/aA1981_DAT:*
/SIDSI/gcgdata/geneseq/geneseqp/aA1983_DAT:*
/SIDSI/gcgdata/geneseq/geneseqp/aA1983_DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        412676
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

New isolated sentrin polypeptide(s) - which inhibit TNF receptor or Fas/APO-induced apoptosis, used to develop products for inducing cell death in tumours  $\,$ 

WPI; 1998-286868/25. N-PSDB; AAV34564.

## ALIGNMENTS

```
AAW60079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                       sentrin-1; protection; tumour necrosis factor; tnf; apoptosis; Fas/APO-induced; tumour cell death; induction; tumour aggressi detection; determination.
                                                                              05-NOV-1996;
                                                                                                                 05-NOV-1997;
                                                                                                                                                                                             WO9820038-A1.
                                                                                                                                                                                                                                    Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                     Homo sapiens sentrin-1 polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                            11-SEP-1998 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW60079;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAW60079 standard; Protein; 101 AA.
Yeh ETH;
                                     (TEXA ) UNIV TEXAS SYSTEM
                                                                                                                                                        14-MAY-1998.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>___</u>
                                                                              96US-0030302.
                                                                                                                   97WO-US20344.
                                                                                                                                                                                                                                                                                               tumour aggressiveness;
```

```
RESULT
AAW87984
ID AAW8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           XXX000000000XXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
The present sequence represents a ubiquitin-like domain of a mammalian protein. The ubiquitin/proteasome pathway is a major pathway for the intracellular degradation of proteins, where the ubiquitin acts as a degradation signal. Proteins which bind the proteasome (a multisubunit complex) have ubiquitin-like (UEL) domains. When the UBL domains are fused to a reporter protein, they can be used to assess the proliferative potential and select
                                                                                                                               Claim 2; Page 25; 84pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                     WO9857978-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ubiquitin; ubiquitin/proteasome pathway; degradation signal; UbL domain; intracellular protein degradation; proteasome; ubiquitin-like domain; fusion protein; drug resistance; malignant cell; purification;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The sequence is that of the sentrin-1 polypeptide. Sentrin polypeptides have the ability to protect or guard cells from tumour necrosis factor (TNF) or Fas/APO induced cell death (apoptosis). Inhibitors of the sentrin polypeptides, e.g. antibodies, can be used for inducing cell death, particularly in tumours. The products can also be used for determining the aggressiveness of a tumour and for detection and isolation of products. The sentrin polypeptide can also be used to detect a ubiquitin conjugating enzyme polypeptide or PML polypeptid
                                                                                                                                                                    cells
                                                                                                                                                                            respectively, for assessing the proliferative potential of malignant
                                                                                                                                                                                             Ubiquitin-like domains as fusion or immobilised proteins -
                                                                                                                                                                                                                                WPI; 1999-095322/08
                                                                                                                                                                                                                                                              Madura
                                                                                                                                                                                                                                                                                              (UYNE-) UNIV NEW JERSEY
                                                                                                                                                                                                                                                                                                                              19-JUN-1997;
                                                                                                                                                                                                                                                                                                                                                            19-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                            23-DEC-1998.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mammalia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ubiquitin-like domain of the protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29-APR-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAW87984;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAW87984 standard; peptide; 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 4; Page 78; 120pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 slrflfegqriadnhtpkelgmeeedvievyqeqtgghstv 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MSDQEAKPSTEDLGDKKQGEYIKLKYLGQDSSEIHFKYKMTTHLKKLKESYCQRQGVPMN 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      msdqeakpstedlgdkkqgeyiklkvigqdsseihfkvkmtthlkklkesycqrqgvpmn 60
                                                                                                                                                                or to purify proteasome complexes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         101 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                              97US-0050171
                                                                                                                                                                                                                                                                                                                                                            98WO-US12846.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 525; DB 19;
Pred. No. 1.2e-54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUMO1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 101;
                                                             where the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
```

γ

1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMN 60

Matches Query Match Best Local

100;

Conservative

1:

Score 522; DB Pred. No. 2.6e 1; Mismatches

DB 21;

Length 101;

Indels

0;

Gaps

0;

Similarity

99.4%;

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S X C C C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAY49967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                      nucleitides long targeted to a nucleic acid molecule encoding human sentrin. The antisense compound comprises a phosphorothicate antisense oligonucleotide which inhibits expression of human sentrin. (I) is useful for inhibiting expression of sentrin in human cells or tissues in vitro, for treating humans or other animals suspected of having or being prone to a disease associated with sentrin expression. (I) can also be used for research or diagnostic purposes. The present
Sequence
                           sequence represents human sentrin.
                                                                                                                                             The present invention describes an antisense compound (I) 8-30
                                                                                                                                                                          Example 13; Column 39-42; 29pp; English.
                                                                                                                                                                                                        treating diseases associated with sentrin
                                                                                                                                                                                                                    Antisense compound which modulates human sentrin expression, useful for
                                                                                                                                                                                                                                                                                              Baker BF,
                                                                                                                                                                                                                                                                                                                                                    17-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                 17-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                            US5985664-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human sentrin protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAY49967;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                drug resistance of malignant cells. The UbL domain also allows the purification of proteasomes for the isolation and characterisation of novel subunits of the proteasome.
                                                                                                                                                                                                                                                                                                                        (ISIS-) ISIS PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                              16-NOV-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   inhibition; modulation; expression; diagnosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human; sentrin; antisense oligonucleotide; phosphorothioate;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           03-FEB-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAY49967 standard; Protein; 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 SLRFLFEGQRIADNHTPKELGMEEEDVIEVYQBQTGGHSTV 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 slrflfegqriadnhtpkelgmeeedvievyqeqtgghstv 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 msdqeakpstedlgdkkegeyiklkvigqdsseihfkvkmtthlkklkesycqrqgvpmn 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMN 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                w
                                                                                                                                                                                                                                                                 2000-022284/02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100;
                                                                                                                                                                                                                                                    AAZ35859.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                            Cowsert LM;
101 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      101 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                     98US-0213768
                                                                                                                                                                                                                                                                                                                                                                                 98US-0213768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 522; DB 20;
Pred. No. 2.6e-54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                      expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
```

```
RESULT
AAW74776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멍
  02-OCT-1997;
07-MAR-1997;
07-MAR-1997;
07-MAR-1997;
07-MAR-1997;
07-MAR-1997;
07-MAR-1997;
07-MAR-1997;
07-MAR-1997;
07-MAR-1997;
                                                                                                                                                                                                                                                                                                11-APR-1997;
11-APR-1997;
11-APR-1997;
11-APR-1997;
11-APR-1997;
11-APR-1997;
11-APR-1997;
11-APR-1997;
11-APR-1997;
11 - APR-1997
11 - APR-1997
11 - APR-1997
23 - MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human; secreted protein; testis; tumour; foetal brain tissue; fusion protein; cancer; central nervous system; seizure; diagnosis; neurodegenerative disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human secreted protein encoded by gene 47 clone HOGAV75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAW74776 standard; Protein; 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAW74776;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               06-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO9839448-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens.
                                                                                                                                                                                                                                                                        11-APR-1997
11-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-SEP-1998
                                                                                                                                                                                                                                                           11-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
 97US-0040163
97US-0040334
97US-0040336
97US-0040336
97US-00403312
97US-00433112
97US-0043568
97US-0043568
97US-0043578
97US-0043578
97US-0043671
97US-0043671
97US-0043671
97US-0043671
97US-0043672
97US-0043673
97US-0043673
97US-0043673
97US-0047581
97US-0047583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97US-0061060.
97US-0038621.
97US-0040161.
97US-0040162.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98WO-US04493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
102
label= unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
     23-MAY-1997

23-MAY-1997

23-MAY-1997

06-JUN-1997

06-JUN-1997

06-JUN-1997

06-JUN-1997

13-JUN-1997

13-JUN-1997

13-JUN-1997

14-AUG-1997

22-AUG-1997

23-AUG-1997

23-AUG-1997

23-AUG-1997

23-AUG-1997

24-AUG-1997

25-AUG-1997

27-AUG-1997

28-AUG-1997

29-AUG-1997

21-AUG-1997

21-AUG-1997

21-AUG-1997

21-AUG-1997

21-AUG-1997

22-AUG-1997

22-AUG-1997

23-AUG-1997

23-AUG-1997

23-AUG-1997

23-AUG-1997

24-AUG-1997

25-AUG-1997

26-AUG-1997

27-AUG-1997

27-AUG-1997

28-AUG-1997

28-AUG-1997

29-AUG-1997

21-AUG-1997

21-AUG-1997

21-AUG-1997

21-AUG-1997

21-AUG-1997

22-AUG-1997

23-AUG-1997

23-AUG-1997

24-AUG-1997

25-AUG-1997

26-AUG-1997

27-AUG-1997

28-AUG-1997

28-AUG-1997

29-AUG-1997

29-AUG-1997

20-AUG-1997

20-AU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23 - MAY - 1997;
     New isolated human genes and the secreted polypeptide(s) they encode - useful for diagnosis and treatment of e.g. cancers, neurological \,
                                             WPI; 1998-506364/43.
N-PSDB; AAV59557.
                                                                                   Bednarik DP, Brewer LA, Carter KC, Duan R, Ebner R, Endress GA; Feng P, Ferrie AM, Fischer CL, Florence KA, Greene JM, Hu JS; Kyaw H, Lafleur DW, Li Y, Moore PA, Ni J, Olsen HS, Rosen CA; Ruben SM, Shi Y, Soppet DR, Young PE, Yu GL, Zeng Z;
                                                                                                                                                     (HUMA-) HUMAN GENOME SCI INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                         97US-0047618
97US-0047632
97US-0048964
97US-0049610
97US-00551926
97US-0055874
97US-0056631
97US-0056631
97US-0056631
97US-0056632
97US-0056637
97US-0056664
97US-0056664
97US-0056664
97US-0056664
97US-0056664
97US-0056874
97US-0056874
97US-0056874
97US-0056877
97US-0056877
97US-0056877
97US-0056877
97US-0056877
97US-0056877
97US-0056877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97US-0047601.
97US-0047612.
97US-0047613.
97US-0047614.
97US-0047615.
97US-0047617.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97US-0047593.
97US-0047594.
97US-0047596.
97US-0047596.
97US-0047597.
97US-0047598.
97US-0047601.
97US-0047601.
                                                                                                                                                                               97US-0056911.
97US-0057650.
97US-0057669.
97US-0057761.
97US-0058785.
                                                                                                                                                                                                                                                 97US-0056908.
97US-0056909.
97US-0056910.
                                                                                                                                                                                                                                                                                                                                               97US-0056886.
97US-0056887.
97US-0056888.
97US-0056889.
                                                                                                                                                                                                                                                                                                                                                                                                    97US-0056881.
97US-0056882.
97US-0056884.
                                                                                                                                                                                                                                                                              97US-0056903
97US-0056908
                                                                                                                                                                                                                                                                                                                    97US-0056892
97US-0056893
                                                                                                                                                                                                                                                                                                          -0056894
```

```
RESULT
AAW87986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This sequence represents a secreted human protein encoded by the nucleic acid molecule designated Gene 47 from the human cDNA clone HGGAV75 (deposited as clone AFCC 97899 and AFCC 209045).

CC The gene can be used to generate fusion proteins by linking to the gene CC to a human immunoglobulin FC portion (e.g. AAV59502) for increasing the CC stability of the fused protein as compared to the human protein only. CC The invention relates to 186 novel penes and their fragments (nucleic CC acid sequences: AAV59511-v59812; amino acid sequences AAW74731-W75026) CC which are useful for preventing, treating or ameliorating medical CC conditions e.g. by protein or gene therapy. Also, pathological CC conditions e.g. by protein or gene therapy. Also, pathological CC conditions can be diagnosed by determining the amount of the new CC polypeptides in a sample or by determining the presence of mutations in CC the new polynucleotides. Specific uses are described for each of the 186 polynucleotides, based on which tissues they are most highly expressed in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
           Claim 2; Page 25; 84pp; English
                                       Ubiquitin-like domains as fusion or immobilised proteins - useful, respectively, for assessing the proliferative potential of malignant cells or to purify proteasome complexes
                                                                                                                     WPI; 1999-095322/08
                                                                                                                                                            Madura K;
                                                                                                                                                                                                                               19-JUN-1997;
                                                                                                                                                                                            (UYNE-) UNIV NEW JERSEY
                                                                                                                                                                                                                                                                 19-JUN-1998;
                                                                                                                                                                                                                                                                                                    23-DEC-1998
                                                                                                                                                                                                                                                                                                                                     W09857978-A1
                                                                                                                                                                                                                                                                                                                                                                     Saccharomyces sp
                                                                                                                                                                                                                                                                                                                                                                                                        Ubiquitin; ubiquitin/proteasome pathway; degradation signal; UbL domain; intracellular protein degradation; proteasome; ubiquitin-like domain; fusion protein; drug resistance; malignant cell; purification; yeast; SMT3A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAW87986 standard; peptide; 95 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ubiquitin-like domain of the yeast protein SMT3A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               disorders, immune diseases, inflammation or blood disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 1; Page 566-567; 721pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (see AAV59511 for described uses).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           msdqeakpstedlgdkkegeyiklkvigqdsseihfkvkmtthlkklkesycqrqgvpmn 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            102 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                           97US-0050171
                                                                                                                                                                                                                                                               98WO-US12846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 522; DB 19; Length 102; Pred. No. 2.7e-54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

```
RESULT
AAW87985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
proteasome (a multisubunit complex) have ubiquitin-like (UbL) domains. When the UbL domains are fused to a reporter protein, they can be used to assess the proliferative potential and select drug resistance of malignant cells. The UbL domain also allows the purification of proteasomes for the isolation and characterisation
                                                                                     The present sequence represents a ubiquitin-like domain of the yeast protein SMT3B. The ubiquitin/proteasome pathway is a major pathway for the intracellular degradation of proteins, where the ubiquitin acts as a degradation signal. Proteins which bind the
                                                                                                                                                                               Claim 2; Page 25; 84pp; English.
                                                                                                                                                                                                                             Ubiquitin-like domains as fusion or immobilised proteins - useful, respectively, for assessing the proliferative potential of malignant
                                                                                                                                                                                                                  cells or to purify proteasome complexes
                                                                                                                                                                                                                                                                                     WPI; 1999-095322/08.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ubiquitin; ubiquitin/proteasome pathway; degradation signal; UbL domain; intracellular protein degradation; proteasome; ubiquitin-like domain; fusion protein; drug resistance; malignant cell; purification;
                                                                                                                                                                                                                                                                                                                          Madura K;
                                                                                                                                                                                                                                                                                                                                                                                                 19-JUN-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                   19-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          proteasome (a multisubunit complex) have ubiquitin-like (UbL) domains. When the UbL domains are fused to a reporter protein, they can be used to assess the proliferative potential and select drug resistance of malignant cells. The UbL domain also allows the purification of proteasomes for the isolation and characterisation of novel subunits of the proteasome.
                                                                                                                                                                                                                                                                                                                                                          (UYNE-) UNIV NEW JERSEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       W09857978-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            yeast; SMT3B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ubiquitin-like domain of the yeast protein SMT3B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29-APR-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAW87985 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The present sequence represents a ubiquitin-like domain of the yeast protein SMT3A. The ubiquitin/proteasome pathway is a major pathway for the intracellular degradation of proteins, where the ubiquitin acts as a degradation signal. Proteins which bind the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          56 qirfrfdgqpinetdtpaqlrmededtidvfqqqtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 SLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 mseekpke----gvktendhinlkvagqdgsvvqfkikrhtslsklmkaycerqglsmr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMN 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              95 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                               97us-0050171
                                                                                                                                                                                                                                                                                                                                                                                                                                 98WO-US12846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         45.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 239.5; DB ZU;
Pred. No. 6.6e-21;
Prematches 26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 20; Length 95;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
```

```
AGGOR340

AGGOR340

AGGOR340

AC AAGG

AC ACAG

AC AAGG

AC ACAG

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 44; Conserv
25-FEB-1999
05-MAR-1999
09-MAR-1999
23-MAR-1999
25-MAR-1999
25-MAR-1999
06-APR-1999
06-APR-1999
06-APR-1999
07-APR-1999
21-APR-1999
21-APR-1999
23-APR-1999
23-APR-1999
24-APR-1999
24-APR-1999
25-APR-1999
14-MAY-1999
15-MAY-1999
16-MAY-1999
17-MAY-1999
18-MAY-1999
19-MAY-1999
19-MAY-1999
19-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      of novel subunits of the proteasome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein identification; signal transduction pathway; metabolic pathway;
hybridisation assay; genetic mapping; gene expression control; promoter;
termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Arabidopsis thaliana protein fragment SEQ ID NO: 5836.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     06-SEP-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAG08340;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAG08340 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-FEB-2000; 2000EP-0301439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       95 AA;
99US-0121825.
99US-0123548.
99US-0125788.
99US-0125785.
99US-0126785.
99US-0126785.
99US-012049.
99US-0130510.
99US-0130510.
99US-0130510.
99US-0131449.
99US-0131449.
99US-0132487.
99US-0132487.
99US-0132887.
99US-0132887.
99US-0132887.
99US-0134287.
99US-0134287.
99US-0134287.
99US-0134287.
99US-0134287.
99US-013428.
99US-0134287.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Protein; 100 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44.28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; Score 232; DB 20;
; Pred. No. 5.1e-20;
21; Mismatches 28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 95;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.
         18-JUN-1999
19-JUN-1999
19-JUN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27 MAX -1999

28 -MAY -1999

01 -JUN -1999

03 -JUN -1999

07 -JUN -1999

07 -JUN -1999

10 -JUN -1999

11 -JUN -1999

14 -JUN -1999

16 -JUN -1999

16 -JUN -1999

16 -JUN -1999

17 -JUN -1999
       99US-0136392.
99US-0137528.
99US-0137528.
99US-0137528.
99US-0137529.
99US-0137529.
99US-013844.
99US-0139452.
99US-0139453.
99US-0139453.
99US-0139453.
99US-0139453.
99US-0139461.
99US-0139463.
99US-0139463.
99US-0139463.
99US-0139463.
99US-0139463.
99US-0139463.
99US-0139463.
99US-0139463.
99US-0139463.
99US-0140055.
99US-0140055.
99US-0144085.
99US-0144333.
99US-0144333.
99US-0144333.
99US-0144333.
99US-0144333.
99US-0144588.
99US-0144588.
99US-0145288.
99US-0145288.
99US-0145288.
99US-0145288.
99US-0144333.
99US-0144588.
99US-0145288.
99US-0145288.
99US-0145288.
99US-0145288.
99US-0145288.
99US-0145288.
99US-0145288.
99US-0145888.
99US-0145888.
99US-0145888.
99US-0146388.
99US-0146388.
99US-0146388.
99US-0146388.
99US-0146388.
99US-0146388.
```

04-AUG-1999 04-AUG-1999 05-AUG-1999 05-AUG-1999 06-AUG-1999 06-AUG-1999 09-AUG-1999 10-AUG-1999 11-AUG-1999 11-AUG-1999 11-AUG-1999 13-AUG-1999 13-AUG-1999 14-AUG-1999 13-AUG-1999 14-AUG-1999 15-AUG-1999 16-AUG-1999 17-AUG-1999 17-AUG-1999

۳.

```
DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
 25-FEB-1999

05-MAR-1999

09-MAR-1999

23-MAR-1999

25-MAR-1999

20-MAR-1999

01-APR-1999

16-APR-1999

16-APR-1999

21-APR-1999

23-APR-1999

23-APR-1999

23-APR-1999

23-APR-1999

24-APR-1999

14-MAY-1999

06-MAY-1999

06-MAY-1999

11-MAY-1999

12-MAY-1999

12-MAY-1999

12-MAY-1999

21-MAY-1999

21-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                     25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                          06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                               EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Arabidopsis thaliana protein fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAG11141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAG11141 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  68 raeqtpdeldmedgdeidamlhqtgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       72 ADNHTPKELGMEEEDVIEVYQEQTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                   2000EP-0301439
990S-0126264
990S-0127462
990S-0128234
990S-0128234
990S-0130449
990S-0130499
990S-0130499
990S-0130490
990S-0132407
990S-0132486
990S-0132486
990S-0132486
990S-0132486
990S-0132486
990S-0132486
990S-0132486
990S-0134218
990S-013428
                                                                                                                                                                                                                                                                                                                                                             99US-01:
99US-01:
99US-01:
                                                                                                                                                                                                                                                                                                                                                                                                99US-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99US-0162142.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Protein; 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             42.6%;
                                                                                                                                                                                                                                                                                                                                                                                                .21825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 223.5; DB 21;
Pred. No. 5.6e-19;
4; Mismatches 25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NO: 9747.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
```

99US-0147204
99US-0147302
99US-0147192
99US-0147416
99US-0147416
99US-0147416
99US-0147416
99US-0148311
99US-0148565
99US-0149175
99US-0149175
99US-0149175
99US-0149175
99US-014922
99US-0151086
99US-0151086
99US-0151086
99US-0151086
99US-0151086
99US-0151086
99US-0151086
99US-0151086
99US-0151303
99US-0151333
99US-0151333
99US-0158232
99US-0158232
99US-0159233
99US-0159233
99US-0159233
99US-0159233
99US-0159638
99US-0160767
99US-0160767
99US-0160780
99US-0160780

18-AUG-1999
20-AUG-1999
20-AUG-1999
23-AUG-1999
23-AUG-1999
25-AUG-1999
26-AUG-1999
27-AUG-1999
28-EP-1999
28-EP-1999
29-SEP-1999
29-SEP-1999
20-SEP-1999
21-CCT-1999
24-CCT-1999
25-CCT-1999
27-CCT-1999
28-CCT-1999
29-CCT-1999
21-CCT-1999
22-CCT-1999

99US-0160980.
99US-0160981.
99US-0160981.
99US-0161404.
99US-0161405.
99US-0161359.
99US-0161350.
99US-0161350.
99US-0161392.
99US-0161992.
99US-0161993.

			סי נ	<b>70</b> *	סי ש	י סי	ם ינ		T1 T1	סי ו	י סי	סי ט	٠ 0	n 1	סי נ	י סי	<u> </u>	9	<u> </u>	י פ	9 79	PR	PH.	יי קר מיד	PR	שי	ש		יט	סי כ	PI	<u>.</u>	P :	2 2	7 7	PF	PF	PR	מ מ	PR	PR	PR	מק	PR	PR	PR	PR	PR	ם פ	סי נ	פי	ים י		יי ק ד	7 7
PR	PR	20 2	×	ž,	0 20	70 7	ž ž	×	žž	שני	70 7	שט	70 7	ž	מי	70 7	20 %	70	20	20 2	۰ ~			~ -		×	æ	ž:	מׁמ	20	20	20	~ ~	0 2	~	~	~												۰ ~	70	70	<b>*</b> ;	ž×		, ,
	03-	02-	02-	28-	27-	27-	26-	23-	23 -	22-	22-	21	21-	21-	20-	20-	19-	19-	19-,	19-	16-	16-	15-	14-		10	~	6	<b>⇔</b> ⊢	٠,	30-	29-	28-	24-	ι ω ι	22-	21-0	18-0	R 18-JUN-1	100	18-3	18-1	18-0	18-0	18-1	18-1	18-0	17-0	16-J	14-J	10-J	0	08-7	4 6	
	AUG-1	02-AUG-19	AUG-1	JUL-1	1111	70L-1	JUL-1	19L-1		JGT-1	JUL-1	10L-1	JUL-1	111	JUL-1	JUL-1	70L-1	11.1	JUL-1	JUL-1		JUL-1	-JUL-1	-JUL-1	- JUL-1	JOL - 1	JUL-1	JUL-1	. TIT - 1	JUL-1	JUN-1	JUN-1	JUN-1		Z - 1	7N-1	JUN-19	JUN-19	0 N-1	UN-19	UN-19	UN-19	UN-15	UN-19	UN-19	UN-19	UN-19	UN-19		UN-19	UN-19	)-JUN-19	٠	TIN 10	١
	, 666	-1999;	, 999	,999;	000	,666	999	999;	99	99	999;	999	; 666	. 666	999;	999;	999	999;	999;	999;	, 666	999;	999;	999;	999;	; 666	999;	999;	999,	999;	999;	999;	999;	9999;	999;	999;	999;	999;	999;	999	999;	; 666	999:	999	, 666	; 666	999;	999:	9 9	999;	; 666	; 660	999	999	5
1	99 66	9908-	99	99	و بو	99	99	99	99	991	991	991	991	999	991	990	966	990	991	990	991	166	990	990	990	990	. 990	990	166	990	990	990	990	990	990	990	990	990	990	990	990	990	990	990	990	990	990	990	1166	990	99U	990	066	1000	1100
	32	22	: ::	: = :	בוב	i ii i	ĭ	<u> </u>	Ξï	4	$\Xi$	בוב	ĭĔį	ΞĒ	55	$\tilde{\mu}$	⊃ F	ترد	$\vdash$	-	ے د	ت د	$\rightarrow$	-			-	μ,	٠,	ب د	ب ،	Ļ	٠,	٠,		· -		-				-						_;		5 G	5 🗔	5	ພະ	ຸ ເ	ū
	47038	46389	46386	45951	45910	45913	45276	45218	45192 45145	45089	45087	45088	45086	44884	44632	44352	44334 44335	44333	44332	44331	44U85	44085	44005	43624	42977	12920	12803	12390	12055	1242	11287	10991	10823	10000	0353	9899	39817	39763	39750	9462	39461	9460	9459	945/	9456	9455	9454	9492	9452	6116	8847	8540	8094	7774	7703
	- ω			`:-:	- :					•				•	:-			•	•	•	•	٠	•		•	•	•	•		•	•	•		•	٠	•	•	•		•	•	•		•	•	•	•		•	•	•			·	
											-																																								· · · · · · · · · · · · · · · · · · ·				
			•	-								_												_										het v				1 87					hi	tti F	n 1		מי ו	<b>'</b> 'D	יטי.	יים יי	יי ט		ָּ ק <b>י</b>	· •	-
	מי		גיי	PR	PR	PR	PR	PR	Nd 1	PR	PR	PR	אָק	PR	PR	PR	PR																							× 0×	PR	æ	æ						æ :			7 72	PR	<b>*</b> :	7
	29	220	280	26	26	ง ภ.บ	25	222	22	2 2	21	21	21	18	1,	1,	1.	14	<u>ц</u>	13	<u>بر</u>	2 0	0.0	0.5	2.0	) N	) N 0 4	2 22	22	20	7 L	щ 1 3	10	07	01	ى ب <u>ـ</u>	٥ <b>د</b>	27	27	26	) K	R 23	R 20	R 20	20	19	16	13	13	12	11-	R 09-	R 09-	R 06-	
	29-005	28-00	28-001	26-00	26-0CI	25-003	25-001	22-001	22-001	21-001	21-001	21-001	21-001	18-0CT	14-001	14-0CT	14-0CT	14-0CI	13-0CT	13-OCT	12-0CT	08-001	06-0CI	05-OCT	04-0CT	29-2FD	24 - SEP	23-SEP	22-SEP	20-SEP	0 E S - S L	13-SEP	10-SEP	07-SEP	01-SEP	31 - AUG	27-AUG	27 - AUG	27 - AUG	R 26-AUG	R 23-AUG	R 23-AUG	R 20-AUG	R 20-AUG	20 - AUG	19-AUG	16-AUG	13-AUG	13-AUG	12-AUG	11 - AUG	R 09-AUG	R 09-AUG	R 06-AUG	
	29-005	226	28-OCT-1999	26-OCT-1999	26-OCT-1999	25-OCT-1999	25-OCT-1999	22-OCT-1999	22-OCT-1999	21-OCT-1999	21-OCT-1999	21-OCT-1999	21-001	18-OCT-1999	14-0CT-1999	14-OCT-1999	14-OCT-1999	14-0CT-1999	13-OCT-1999	13-OCT-1999	12-OCT-1999	08-001	06-0CI	05-OCT	04-0CT	29-2FD	24 - SEP	23-SEP	22-SEP	20-SEP	0 E S - S L	13-SEP	10-SEP	07-SEP	01-SEP	31 - AUG	27-AUG	27 - AUG	27 - AUG	R 26-AUG	R 23-AUG	R 23-AUG	R 20-AUG	R 20-AUG	20 - AUG	19-AUG	16-AUG	13-AUG	13-AUG	12-AUG	11 - AUG	R 09-AUG	R 09-AUG	R 06-AUG	2001
	28-0CT-1999; 29-0CT-1999;	28-OCT-1999;	28-OCT-1999;	26-OCT-1999;	26-OCT-1999;	25-OCT-1999;	25-OCT-1999;	22-OCT-1999;	22-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	18-OCT-1999;	14-0CT-1999;	14-OCT-1999;	14-OCT-1999;	14-OCT-1999;	13-OCT-1999;	13-OCT-1999;	12-OCT-1999;	07-0CT-1999;	06-OCT-1999;	05-OCT-1999;	04-OCT-1999;	28-SEP-1999;	24-SEP-1999;	23-SEP-1999;	22-SEP-1999;	20-SEP-1999;	16-SEP-1999;	13-SEP-1999;	10-SEP-1999;	07-SEP-1999;	01-SEP-1999;	31-AUG-1999;	2/-AUG-1999;	27-AUG-1999;	27-AUG-1999;	R 26-AUG-1999;	R 23-AUG-1999;	R 23-AUG-1999;	R 20-AUG-1999;	R 20-AUG-1999;	10-AUG-1999;	19-AUG-1999;	16-AUG-1999;	13-AUG-1999;	13-AUG-1999;	12-AUG-1999;	11-AUG-1999;	R 09-AUG-1999;	R 09-AUG-1999;	R 06-AUG-1999;	- CO 1100 HULL
	28-0CT-1999; 29-0CT-1999;	28-OCT-1999;	28-OCT-1999;	26-OCT-1999;	26-OCT-1999;	25-OCT-1999;	25-OCT-1999;	22-OCT-1999;	22-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	18-OCT-1999;	14-0CT-1999;	14-OCT-1999;	14-OCT-1999;	14-OCT-1999;	13-OCT-1999;	13-OCT-1999;	12-OCT-1999;	07-0CT-1999;	06-OCT-1999;	05-OCT-1999;	04-OCT-1999;	28-SEP-1999;	24-SEP-1999;	23-SEP-1999;	22-SEP-1999;	20-SEP-1999;	16-SEP-1999;	13-SEP-1999;	10-SEP-1999;	07-SEP-1999;	01-SEP-1999;	31-AUG-1999;	2/-AUG-1999;	27-AUG-1999;	27-AUG-1999;	R 26-AUG-1999;	R 23-AUG-1999;	R 23-AUG-1999;	R 20-AUG-1999;	R 20-AUG-1999;	10-AUG-1999;	19-AUG-1999;	16-AUG-1999;	13-AUG-1999;	13-AUG-1999;	12-AUG-1999;	11-AUG-1999;	R 09-AUG-1999;	R 09-AUG-1999;	R 06-AUG-1999;	- CO 1100 HULL
	28-0CT-1999; 29-0CT-1999;	28-OCT-1999;	28-OCT-1999;	26-OCT-1999;	26-OCT-1999;	25-OCT-1999;	25-OCT-1999;	22-OCT-1999;	22-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	18-OCT-1999;	14-0CT-1999;	14-OCT-1999;	14-OCT-1999;	14-OCT-1999;	13-OCT-1999;	13-OCT-1999;	12-OCT-1999;	07-0CT-1999;	06-OCT-1999;	05-OCT-1999;	04-OCT-1999;	28-SEP-1999;	24-SEP-1999;	23-SEP-1999;	22-SEP-1999;	20-SEP-1999;	16-SEP-1999;	13-SEP-1999;	10-SEP-1999;	07-SEP-1999;	01-SEP-1999;	31-AUG-1999;	2/-AUG-1999;	27-AUG-1999;	27-AUG-1999;	R 26-AUG-1999;	R 23-AUG-1999;	R 23-AUG-1999;	R 20-AUG-1999;	R 20-AUG-1999;	10-AUG-1999;	19-AUG-1999;	16-AUG-1999;	13-AUG-1999;	13-AUG-1999;	12-AUG-1999;	11-AUG-1999;	R 09-AUG-1999;	R 09-AUG-1999;	R 06-AUG-1999;	00
	28-0CT-1999; 29-0CT-1999;	28-OCT-1999; 99US-0161992	28-OCT-1999;	26-OCT-1999;	26-OCT-1999;	25-OCT-1999;	25-OCT-1999;	22-OCT-1999;	22-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	18-OCT-1999;	14-0CT-1999;	14-OCT-1999;	14-OCT-1999;	14-OCT-1999;	13-OCT-1999;	13-OCT-1999;	12-OCT-1999;	07-0CT-1999;	06-OCT-1999;	05-OCT-1999;	04-OCT-1999;	28-SEP-1999;	24-SEP-1999;	23-SEP-1999;	22-SEP-1999;	20-SEP-1999;	16-SEP-1999;	13-SEP-1999;	10-SEP-1999;	07-SEP-1999;	01-SEP-1999;	31-AUG-1999;	2/-AUG-1999;	27-AUG-1999;	27-AUG-1999;	R 26-AUG-1999;	R 23-AUG-1999;	R 23-AUG-1999;	R 20-AUG-1999;	R 20-AUG-1999;	10-AUG-1999;	19-AUG-1999;	16-AUG-1999;	13-AUG-1999;	13-AUG-1999;	12-AUG-1999;	11-AUG-1999;	R 09-AUG-1999;	R 09-AUG-1999;	R 06-AUG-1999;	00
	28-0CT-1999; 29-0CT-1999;	28-OCT-1999;	28-OCT-1999;	26-OCT-1999;	26-OCT-1999;	25-OCT-1999;	25-OCT-1999;	22-OCT-1999;	22-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	18-OCT-1999;	14-0CT-1999;	14-OCT-1999;	14-OCT-1999;	14-OCT-1999;	13-OCT-1999;	13-OCT-1999;	12-OCT-1999;	07-0CT-1999;	06-OCT-1999;	05-OCT-1999;	04-OCT-1999;	28-SEP-1999;	24-SEP-1999;	23-SEP-1999;	22-SEP-1999;	20-SEP-1999;	16-SEP-1999;	13-SEP-1999;	10-SEP-1999;	07-SEP-1999;	01-SEP-1999;	31-AUG-1999;	2/-AUG-1999;	27-AUG-1999;	27-AUG-1999;	R 26-AUG-1999;	R 23-AUG-1999;	R 23-AUG-1999;	R 20-AUG-1999;	R 20-AUG-1999;	10-AUG-1999;	19-AUG-1999;	16-AUG-1999;	13-AUG-1999;	13-AUG-1999;	12-AUG-1999;	11-AUG-1999;	R 09-AUG-1999;	R 09-AUG-1999;	R 06-AUG-1999;	- CO 1100 HULL
	28-0CT-1999; 29-0CT-1999;	28-OCT-1999;	28-OCT-1999;	26-OCT-1999;	26-OCT-1999;	25-OCT-1999;	25-OCT-1999;	22-OCT-1999;	22-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	18-OCT-1999;	14-0CT-1999;	14-OCT-1999;	14-OCT-1999;	14-OCT-1999;	13-OCT-1999;	13-OCT-1999;	12-OCT-1999;	07-0CT-1999;	06-OCT-1999;	05-OCT-1999;	04-OCT-1999;	28-SEP-1999;	24-SEP-1999;	23-SEP-1999;	22-SEP-1999;	20-SEP-1999;	16-SEP-1999;	13-SEP-1999;	10-SEP-1999;	07-SEP-1999;	01-SEP-1999;	31-AUG-1999;	2/-AUG-1999;	27-AUG-1999;	27-AUG-1999;	R 26-AUG-1999;	R 23-AUG-1999;	R 23-AUG-1999;	R 20-AUG-1999;	R 20-AUG-1999;	10-AUG-1999;	19-AUG-1999;	16-AUG-1999;	13-AUG-1999;	13-AUG-1999;	12-AUG-1999;	11-AUG-1999;	R 09-AUG-1999;	R 09-AUG-1999;	R 06-AUG-1999;	- CO 1100 HULL
	28-0CT-1999; 29-0CT-1999;	28-OCT-1999;	28-OCT-1999;	26-OCT-1999;	26-OCT-1999;	25-OCT-1999;	25-OCT-1999;	22-OCT-1999;	22-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	18-OCT-1999;	14-0CT-1999;	14-OCT-1999;	14-OCT-1999;	14-OCT-1999;	13-OCT-1999;	13-OCT-1999;	12-OCT-1999;	07-0CT-1999;	06-OCT-1999;	05-OCT-1999;	04-OCT-1999;	28-SEP-1999;	24-SEP-1999;	23-SEP-1999;	22-SEP-1999;	20-SEP-1999;	16-SEP-1999;	13-SEP-1999;	10-SEP-1999;	07-SEP-1999;	01-SEP-1999;	31-AUG-1999;	2/-AUG-1999;	27-AUG-1999;	27-AUG-1999;	R 26-AUG-1999;	R 23-AUG-1999;	R 23-AUG-1999;	R 20-AUG-1999;	R 20-AUG-1999;	10-AUG-1999;	19-AUG-1999;	16-AUG-1999;	13-AUG-1999;	13-AUG-1999;	12-AUG-1999;	11-AUG-1999;	R 09-AUG-1999;	R 09-AUG-1999;	R 06-AUG-1999;	2 CC DCC FULL
	28-0CT-1999; 29-0CT-1999;	28-OCT-1999;	28-OCT-1999;	26-OCT-1999;	26-OCT-1999;	25-OCT-1999;	25-OCT-1999;	22-OCT-1999;	22-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	18-OCT-1999;	14-0CT-1999;	14-OCT-1999;	14-OCT-1999;	14-OCT-1999;	13-OCT-1999;	13-OCT-1999;	12-OCT-1999;	07-0CT-1999;	06-OCT-1999;	05-OCT-1999;	04-OCT-1999;	28-SEP-1999;	24-SEP-1999;	23-SEP-1999;	22-SEP-1999;	20-SEP-1999;	16-SEP-1999;	13-SEP-1999;	10-SEP-1999;	07-SEP-1999;	01-SEP-1999;	31-AUG-1999;	2/-AUG-1999;	27-AUG-1999;	27-AUG-1999;	R 26-AUG-1999;	R 23-AUG-1999;	R 23-AUG-1999;	R 20-AUG-1999;	R 20-AUG-1999;	10-AUG-1999;	19-AUG-1999;	16-AUG-1999;	13-AUG-1999;	13-AUG-1999;	12-AUG-1999;	11-AUG-1999;	R 09-AUG-1999;	R 09-AUG-1999;	R 06-AUG-1999;	N CC DCC FULL
	28-0CT-1999; 29-0CT-1999;	28-OCT-1999;	28-OCT-1999;	26-OCT-1999;	26-OCT-1999;	25-OCT-1999;	25-OCT-1999;	22-OCT-1999;	22-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	18-OCT-1999;	14-0CT-1999;	14-OCT-1999;	14-OCT-1999;	14-OCT-1999;	13-OCT-1999;	13-OCT-1999;	12-OCT-1999;	07-0CT-1999;	06-OCT-1999;	05-OCT-1999;	04-OCT-1999;	28-SEP-1999;	24-SEP-1999;	23-SEP-1999;	22-SEP-1999;	20-SEP-1999;	16-SEP-1999;	13-SEP-1999;	10-SEP-1999;	07-SEP-1999;	01-SEP-1999;	31-AUG-1999;	2/-AUG-1999;	27-AUG-1999;	27-AUG-1999;	R 26-AUG-1999;	R 23-AUG-1999;	R 23-AUG-1999;	R 20-AUG-1999;	R 20-AUG-1999;	10-AUG-1999;	19-AUG-1999;	16-AUG-1999;	13-AUG-1999;	13-AUG-1999;	12-AUG-1999;	11-AUG-1999;	R 09-AUG-1999;	R 09-AUG-1999;	R 06-AUG-1999;	N CC DCC FULL
	28-0CT-1999; 29-0CT-1999;	28-OCT-1999;	28-OCT-1999;	26-OCT-1999;	26-OCT-1999;	25-OCT-1999;	25-OCT-1999;	22-OCT-1999;	22-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	18-OCT-1999;	14-0CT-1999;	14-OCT-1999;	14-OCT-1999;	14-OCT-1999;	13-OCT-1999;	13-OCT-1999;	12-OCT-1999;	07-0CT-1999;	06-OCT-1999;	05-OCT-1999;	04-OCT-1999;	28-SEP-1999;	24-SEP-1999;	23-SEP-1999;	22-SEP-1999;	20-SEP-1999;	16-SEP-1999;	13-SEP-1999;	10-SEP-1999;	07-SEP-1999;	01-SEP-1999;	31-AUG-1999;	2/-AUG-1999;	27-AUG-1999;	27-AUG-1999;	R 26-AUG-1999;	R 23-AUG-1999;	R 23-AUG-1999;	R 20-AUG-1999;	R 20-AUG-1999;	10-AUG-1999;	19-AUG-1999;	16-AUG-1999;	13-AUG-1999;	13-AUG-1999;	12-AUG-1999;	11-AUG-1999;	R 09-AUG-1999;	R 09-AUG-1999;	R 06-AUG-1999;	N CC DCC FULL
	28-0CT-1999; 29-0CT-1999;	28-OCT-1999;	28-OCT-1999;	26-OCT-1999;	26-OCT-1999;	25-OCT-1999;	25-OCT-1999;	22-OCT-1999;	22-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	21-OCT-1999;	18-OCT-1999;	14-0CT-1999;	14-OCT-1999;	14-OCT-1999;	14-OCT-1999;	13-OCT-1999;	13-OCT-1999;	12-OCT-1999;	07-0CT-1999;	06-OCT-1999;	05-OCT-1999;	04-OCT-1999;	28-SEP-1999;	24-SEP-1999;	23-SEP-1999;	22-SEP-1999;	20-SEP-1999;	16-SEP-1999;	13-SEP-1999;	10-SEP-1999;	07-SEP-1999;	01-SEP-1999;	31-AUG-1999;	2/-AUG-1999;	27-AUG-1999;	27-AUG-1999;	R 26-AUG-1999;	R 23-AUG-1999;	R 23-AUG-1999;	R 20-AUG-1999;	R 20-AUG-1999;	10-AUG-1999;	19-AUG-1999;	16-AUG-1999;	13-AUG-1999;	13-AUG-1999;	12-AUG-1999;	11-AUG-1999;	R 09-AUG-1999;	R 09-AUG-1999;	R 06-AUG-1999;	K U6-AUG-1999;

```
RESULT
AAG46644
ID AAG4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity 51.8%; Pr Matches 44; Conservative 13;
          25-FEB-1999

05-MAR-1999

09-MAR-1999

23-MAR-1999

25-MAR-1999

29-MAR-1999

01-APR-1999

08-APR-1999

08-APR-1999

14-APR-1999

23-APR-1999

23-APR-1999

24-APR-1999

24-APR-1999

04-MAY-1999

05-MAY-1999

06-MAY-1999

11-MAY-1999

11-MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Arabidopsis thaliana protein fragment SEQ ID NO: 58704.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAG46644;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAG46644 standard; Protein; 103 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              aeqtpdelemedgdeidamlhqtgg 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000EP-0301439
         99US-0123180

99US-0123548

99US-0126788

99US-0126785

99US-012874

99US-012874

99US-0130477

99US-013048

99US-013048

99US-013048

99US-013148

99US-013248

99US-013421

99US-013562

99US-013562

99US-013562

99US-013562

99US-0137502

99US-0137502

99US-0137502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0121825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No. 1.1e-18; 13; Mismatches 26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۲.
   19-JUL-1999

19-JUL-1999

19-JUL-1999

20-JUL-1999

20-JUL-1999

20-JUL-1999

21-JUL-1999

21-JUL-1999

22-JUL-1999

22-JUL-1999

22-JUL-1999

22-JUL-1999

23-JUL-1999

23-JUL-1999

23-JUL-1999

23-JUL-1999

23-JUL-1999

24-JUL-1999

27-JUL-1999

28-JUL-1999

29-JUL-1999

29-JUL-1999

29-JUL-1999

29-JUL-1999

29-JUL-1999

29-JUL-1999

20-AUG-1999

01-AUG-1999

01-AU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18-JUN-1999
21-JUN-1999
22-JUN-1999
23-JUN-1999
23-JUN-1999
23-JUN-1999
24-JUN-1999
24-JUN-1999
30-JUN-1999
30-JUL-1999
01-JUL-1999
02-JUL-1999
06-JUL-1999
08-JUL-1999
09-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13-JUL-1999
14-JUL-1999
15-JUL-1999
16-JUL-1999
16-JUL-1999
19-JUL-1999
19-JUL-1999
19-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16-JUN-1999
17-JUN-1999
18-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  08-JUN-1999;
10-JUN-1999;
10-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-JUN-1999;
16-JUN-1999;
990S-0139453
990S-0139454
990S-0139454
990S-0139456
990S-0139461
990S-0139461
990S-0139462
990S-0139463
990S-0139463
990S-0139463
990S-0139463
990S-0140635
990S-0140635
990S-0140635
990S-0140635
990S-0140635
990S-0144085
990S-0144333
990S-0144333
990S-0144333
990S-0144333
990S-0144333
990S-0145918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0138094.
99US-0138540.
99US-0138847.
99US-0139119.
99US-0139452.
```

```
Query Match
Best Local Similarity
Matches 44; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     09-AUG-1999

10-AUG-1999

11-AUG-1999

11-AUG-1999

13-AUG-1999

13-AUG-1999

13-AUG-1999

16-AUG-1999

17-AUG-1999

20-AUG-1999

20-AUG-1999

20-AUG-1999

23-AUG-1999

23-AUG-1999

25-AUG-1999

27-AUG-1999

27-AUG-1999

27-AUG-1999

27-AUG-1999

31-AUG-1999

31-AUG-1999

31-AUG-1999

31-AUG-1999

31-AUG-1999

31-AUG-1999

31-AUG-1999

31-AUG-1999

31-AUG-1999

31-AUG-1999
                                                                               24-SEP-1999;
28-SEP-1999;
29-SEP-1999;
04-OCT-1999;
05-OCT-1999;
07-OCT-1999;
07-OCT-1999;
13-OCT-1999;
13-OCT-1999;
14-OCT-1999;
14-OCT-1999;
14-OCT-1999;
14-OCT-1999;
14-OCT-1999;
14-OCT-1999;
14-OCT-1999;
12-OCT-1999;
21-OCT-1999;
22-OCT-1999;
23-OCT-1999;
25-OCT-1999;
26-OCT-1999;
26-OCT-1999;
28-OCT-1999;
28-OCT-1999;
28-OCT-1999;
28-OCT-1999;
29-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10-SEP-1999;
13-SEP-1999;
15-SEP-1999;
16-SEP-1999;
20-SEP-1999;
22-SEP-1999;
23-SEP-1999;
              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  990S-0151065
990S-0151080
990S-0151080
990S-0151303
990S-0151930
990S-0152363
990S-0153758
990S-0154018
990S-0154039
990S-0154039
990S-0155139
990S-0155139
990S-0155139
990S-015659
990S-015659
990S-0156458
990S-0156458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0149175.
99US-0149722.
99US-0149723.
99US-0149723.
99US-0149929.
99US-0149930.
99US-0149930.
99US-0150566.
99US-0150884.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-0148341.
99US-0148565.
99US-0148684.
99US-0149368.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0147493.
99US-0147935.
99US-0148171.
                                                                               99US-0158232

99US-0159293

99US-0159294

99US-0159294

99US-0159329

99US-0159330

99US-0159638

99US-0159638

99US-0159638

99US-0160767

99US-0160767

99US-0160768

99US-0160768

99US-0160768

99US-0160768

99US-0160814

99US-0160815

99US-0160981

99US-0160981

99US-0161406

99US-0161406

99US-0161406

99US-0161360

99US-0161361

99US-0161361

99US-0161361

99US-01613920

99US-01619920

99US-01619920

99US-01619920
                               42.1%; Score 221; DB 21; 51.8%; Pred. No. 1.1e-18;
                13;
              Mismatches
                                                  Length 103;
                  Indels
                  2:
                Gaps
                  1;
 ARESULT 10
AAG4466
XX AAG4466
XX AAG4466
XX DT 18-OCT
XX Protei
KW Protei
KW hybrid
KW termin
XX EP1033
XX 06-SEP
PR 05-MAA
PR 25-FEE
PR 09-MAA
PR 29-MAA
PR 11-API
PR 10-API
PR 11-API
PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     망
14-MAY-1999
14-MAY-1999
14-MAY-1999
18-MAY-1999
20-MAY-1999
20-MAY-1999
21-MAY-1999
21-MAY-1999
27-MAY-1999
27-MAY-1999
27-MAY-1999
01-JUN-1999
01-JUN-1999
07-JUN-1999
10-JUN-1999
10-JUN-1999
                                                                                                                                                                                                                                                                                                                    19-APR-1999
21-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
30-APR-1999
30-APR-1999
05-MAY-1999
06-MAY-1999
06-MAY-1999
07-MAY-1999
11-MAY-1999
11-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25-FEB-1999;
05-MAR-1999;
09-MAR-1999;
23-MAR-1999;
25-MAR-1999;
29-MAR-1999;
01-APR-1999;
06-APR-1999;
16-APR-1999;
16-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis thaliana protein fragment SEQ ID NO: 58703.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAG46643 standard; Protein; 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          06-SEP-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein identification; signal transduction pathway; metabolic pathway;
hybridisation assay; genetic mapping; gene expression control; promoter;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAG46643;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 || || || ||: | ||: |||| 68 aeqtpdelemedgdeidamlhqtgg 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                73 DNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000EP-0301439
 99US-0123180
99US-0123548
99US-0125788
99US-0126785
99US-0126785
99US-0127462
99US-0130479
99US-0130077
99US-013049
99US-0134407
99US-0132486
99US-0132486
99US-0134286
99US-0134286
99US-0134219
99US-0134370
99US-0135029
99US-0137502
99US-0137502
99US-0137502
99US-0137502
99US-0137502
99US-0137502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
```

```
Qy
                                                                                                                                                                                    מה מ
מה מים מונים מונים
           Дβ
                                                                                            Query Match
Best Local
Matches 4
                                                                                                                                                                                  18 - AUG-1999;
20 - AUG-1999;
20 - AUG-1999;
20 - AUG-1999;
23 - AUG-1999;
25 - AUG-1999;
26 - AUG-1999;
27 - AUG-1999;
27 - AUG-1999;
27 - AUG-1999;
27 - AUG-1999;
31 - AUG-1999;
31 - AUG-1999;
31 - AUG-1999;
31 - SEP-1999;
31 - SEP-1999;
32 - SEP-1999;
33 - SEP-1999;
34 - SEP-1999;
35 - SEP-1999;
36 - OCT-1999;
37 - AUG-1999;
38 - OCT-1999;
39 - OCT-1999;
30 - OCT-1999;
31 - OCT-1999;
31 - OCT-1999;
32 - OCT-1999;
33 - OCT-1999;
34 - OCT-1999;
35 - OCT-1999;
36 - OCT-1999;
37 - OCT-1999;
38 - OCT-1999;
39 - OCT-1999;
39 - OCT-1999;
30 - OCT-1999;
30 - OCT-1999;
31 - OCT-1999;
32 - OCT-1999;
33 - OCT-1999;
34 - OCT-1999;
35 - OCT-1999;
36 - OCT-1999;
37 - OCT-1999;
38 - OCT-1999;
39 - OCT-1999;
39 - OCT-1999;
39 - OCT-1999;
30 - OCT-1999;
30 - OCT-1999;
31 - OCT-1999;
32 - OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13-AUG-1999;
16-AUG-1999;
17-AUG-1999;
           58
                                                  15
                                                                                                                                        Match
cn 42.1%;
l Similarity 51.8%;
44; Conservative 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3-1999;
3-1999;
3-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     :-1999;
:-1999;
:-1999;
                                                                                                                                                                             99US -0148319

99US -0148341

99US -0148565

99US -0149566

99US -0149723

99US -0149723

99US -0149723

99US -0149723

99US -0151065

99US -0151303

99US -0154018

99US -0154018

99US -0154018

99US -0154018

99US -01554018

99US -01554018

99US -0155403

99US -0155403

99US -0155403

99US -0155403

99US -0155403

99US -015623

99US -015633

99US -015659

99US -015833

99US -015923

99US -015923

99US -0160761

99US -0160761

99US -0160761

99US -0161406

99US -0161406

99US -0161361

99US -0161361
                                                                                       %; Score 221; DB
%; Pred. No. 1.9e
13; Mismatches
                                                                                       DB 21;
.9e-18;
les 26;
                                                                                                                                   Length 153;
                                                                                          Indels
                                                                                       2;
                                                                                       Gaps
                                                                                       1;
```

14-JUN-1999
16-JUN-1999
18-JUN-1999
18-JUN

99US-0139119
99US-0139452
99US-0139453
99US-0139454
99US-0139455
99US-0139456
99US-0139456
99US-0139460
99US-0139460
99US-0139460
99US-0139461
99US-0139461
99US-0139463
99US-0149763
99US-0140695
99US-0140695
99US-0140695
99US-0140869
99US-0140869
99US-0142920
99US-0144334
99US-0144334
99US-0144334
99US-0144334
99US-0145218
99US-0147204
99US-0147303

```
RESULT 11
AAW879
XX AAW879
XX AAW879
XX Ubiqui
XX Uo985
XX 19-JUI
XX 19-JUI
XX 19-JUI
XX UYNE
XX Madur
XX Madur
XX Ubiqu
PT respe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
RESULT 1
AAG41138
ID AAG4
                                                                                                                                                                           Ş
                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                              δÃ
                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The present sequence represents a ubiquitin-like domain of the yeast protein SMT3. The ubiquitin/proteasome pathway is a major pathway for the intracellular degradation of proteins, where the ubiquitin acts as a degradation signal. Proteins which bind the proteasome (a multisubunit complex) have ubiquitin-like (UDL) domains. When the UDL domains are fused to a reporter protein, they can be used to assess the proliferative potential and select drug resistance of malignant cells. The UDL domain also allows the purification of proteasomes for the isolation and characterisation of novel subunits of the proteasome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAW87987 standard; peptide; 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   fusion protein; drug resistance; malignant cell; purification;
yeast; SMT3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ubiquitin; ubiquitin/proteasome pathway; degradation signal; UbL domain;
intracellular protein degradation; proteasome; ubiquitin-like domain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Obiquitin-like domain of the yeast protein SMT3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ubiquitin-like domains as fusion or immobilised proteins - useful, respectively, for assessing the proliferative potential of malignant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 1999-095322/08.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23-DEC-1998.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   W09857978-Al.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Saccharomyces sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29-APR-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73 DNHTPKELGMEEEDVIEVYQEQTGG 97
|| || || || : || : || || || 1111
118 aegtpdelemedgdeidamlhqtgg 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 2; Page 25; 84pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cells or to purify proteasome complexes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (UYNE-) UNIV NEW JERSEY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-JUN-1997;
     AAG41138 standard; Protein; 99 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      intracellular protein degradation;
                                                                                                                             |:|||||::| || : ||::| |:| ::| || 58 kemdslrflydgiriqadqtpedldmedndiieahreqigg
                                                                                                                                                                                57 VPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                        12
                                                                                                                                                                                                                                ш
                                                                                                                                                                                                                                                           1 MSD----QEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQG 56
                                                                                                                                                                                                                             49;
                                                                                                                                                                                                                                                                                                                                      h 41.6%; Score 218.5; DB 20; Length 100; Similarity 48.5%; Pred. No. 2.2e-18; 49; Conservative 19; Mismatches 26; Indels 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97US-0050171.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98WO-US12846.
                                                                                                                                                                                                                                                                                                                                   7;
                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                           w
```

```
23 APR-1999
28 APR-1999
30 APR-1999
30 APR-1999
30 APR-1999
05 MAY 1999
06 MAY 1999
06 MAY 1999
11 MAY 1999
11 MAY 1999
11 MAY 1999
11 MAY 1999
12 MAY 1999
14 MAY 1999
14 MAY 1999
14 MAY 1999
14 MAY 1999
17 MAY 1999
18 MAY 1999
21 MAY 1999
                                                                                                                                                                                                                                                                                                                                                                              08-APR-1999;
16-APR-1999;
19-APR-1999;
21-APR-1999;
23-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                           05-MAR-1999;
09-MAR-1999;
23-MAR-1999;
25-MAR-1999;
29-MAR-1999;
01-APR-1999;
06-APR-1999;
18-JUN-1999;
18-JUN-1999;
18-JUN-1999;
18-JUN-1999;
18-JUN-1999;
18-JUN-1999;
18-JUN-1999;
                                                                        10-JUN-1999;
10-JUN-1999;
14-JUN-1999;
16-JUN-1999;
16-JUN-1999;
17-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Zea mays protein fragment SEQ ID NO: 51144.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAG41138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 06-SEP-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Zea mays subsp. mays.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      termination sequence; corn.
                                                              18-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000EP-0301439
        990S-0134256.
990S-0134218.
990S-0134221.
990S-0134768.
990S-0134941.
990S-0135533.
990S-0136639.
990S-0136782.
990S-0136782.
990S-0137528.
990S-0137528.
990S-0137528.
990S-0137528.
990S-0137528.
990S-0137528.
990S-0139454.
990S-0139454.
990S-0139454.
990S-0139457.
990S-0139457.
990S-0139457.
990S-0139456.
                                                                                                                                                                                                                                                                                                                          99US-0130891.
99US-0131449.
99US-0132048.
99US-0132407.
99US-0132484.
99US-0132485.
                                                                                                                                                                                                                                                                                                                                                                                 99US-0130077.
99US-0130449.
99US-0130510.
                                                                                                                                                                                                                                                                                                99US-0132487
99US-0132863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0121825
                                                                                                                                                                                                                                                                                                                                                                                                             9905-0129845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99US-0123548
                                                                                                                                                                                                                                                                                                                 99US-0132486
```

```
RESULT 13
AAW87497
ID AAW874
XX
AC AAW874
XX
                                                                                                                                                         밁
                                                                                                                                                                                          Qy
                                                                                                                                                                                                                                                                                                                                                                                            RR את המי את המ
                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                        Ωy
                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                        25-AUG-1999

27-AUG-1999

27-AUG-1999

27-AUG-1999

27-AUG-1999

30-AUG-1999

31-AUG-1999

10-SEP-1999

10-SEP-1999

11-SEP-1999

22-SEP-1999

23-SEP-1999

24-SEP-1999

24-SEP-1999

29-SEP-1999

29-SEP-1999

29-SEP-1999

29-SEP-1999

29-SEP-1999

29-SEP-1999

11-OCT-1999

13-OCT-1999

13-OCT-1999

14-OCT-1999

14-OCT-1999

14-OCT-1999

14-OCT-1999

12-OCT-1999

12-OCT-1999

13-OCT-1999

13-OCT-1999

14-OCT-1999

14-OCT-1999

12-OCT-1999

13-OCT-1999

13-OCT-1999

14-OCT-1999

14-OCT-1999

15-OCT-1999

21-OCT-1999

22-OCT-1999

23-OCT-1999

24-OCT-1999

25-OCT-1999

26-OCT-1999

27-OCT-1999

27-OCT-1999

28-OCT-1999

29-OCT-1999

29-OCT-1999
                    AAW87497;
                                                       AAW87497 standard;
                                                                                                                                                                                                                        67 lrgeqtpdelemedgdeidamlhqtgg
                                                                                                                                                                   71 IADNHTPKELGMEEEDVIEVYQEQTGG
                                                                                                                                                                                                                                                                                                        ch 41.5%;
l Similarity 48.3%;
42; Conservative 1
                                                                                                                                                                                                                                                                                                                                                                                      99US-0150566
99US-0151065
99US-0151066
99US-0151066
99US-0151066
99US-0151303
99US-0151303
99US-0152363
99US-0154018
99US-0154018
99US-0154018
99US-0154018
99US-0155408
99US-0155408
99US-0155408
99US-0155408
99US-0156498
99US-0156498
99US-015822
99US-015823
99US-015823
99US-0159293
99US-0159293
99US-0159293
99US-0159293
99US-0159293
99US-0159293
99US-0159293
99US-0160767
99US-0160770
99US-0160781
99US-0160781
99US-0160781
99US-0160781
99US-0161360
99US-0161360
99US-0161361
                                                       Protein; 126
                                                                                                                                                                                                                                                                                                        ; Score 218; DB 21;
; Pred. No. 2.5e-18;
15; Mismatches 30;
                                                     AΑ
                                                                                                                                                     93
                                                                                                                                                                                          97
                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                 99;
                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                               66
                                                                                                                                                                                                                                                                   70
                                                                                                                                                                                                                                                                                                        0;
```

18-JUN-1999
18-JUN-1999
18-JUN-1999
18-JUN-1999
18-JUN-1999
18-JUN-1999
23-JUN-1999
22-JUN-1999
24-JUN-1999
24-JUN-1999
25-JUN-1999
26-JUL-1999
27-JUL-1999
16-JUL-1999
16-JUL-1999
16-JUL-1999
16-JUL-1999
19-JUL-1999
20-JUL-1999
20-JUL-1999
20-JUL-1999
21-JUL-1999
22-JUL-1999
23-JUL-1999
21-JUL-1999
21-JUL-1999
22-JUL-1999
23-JUL-1999
23-JUL-1999
21-JUL-1999
22-JUL-1999
23-JUL-1999
23-JUL

99US-0139462
99US-0139753
99US-0139753
99US-0139753
99US-0140353
99US-0140823
99US-0140823
99US-0141842
99US-0142059
99US-0142059
99US-0142059
99US-0142390
99US-0142390
99US-01442390
99US-01442391
99US-0144331
99US-0144331
99US-0144331
99US-0145218
99US-0146388
99US-0145218
99US-0145218
99US-0147318
99US-0147318
99US-0147318
99US-0145218
99US-0147303
99US-0147303
99US-0147303
99US-0147303
99US-0147303
99US-0148341
99US-0149368
99US-0149368
99US-0149722
99US-0149722
99US-0149722
99US-0149722
99US-0149722
99US-0149722
99US-0149723

2;

```
cc exposure to damage from radiation or carcinogenic compounds). The CC polypeptide can be used to treat patients with ataxia telangiectasia, or CC related diseases, who are undergoing radiation treatment for cancers associated with these diseases, or it is added to sunscreens. The HSWTH CC protein is also used for the generation of antibodies and screening for specific binding agents (potential therapeutics). Antagonists are used to treat or prevent cell proliferative diseases, especially cancer and CC inflammation (e.g. asthma, Crohn's disease, rheumatoid arthritis). The CHSWTH nucleic acid and its fragments are used as antisense/ribozyme CC therapeutics; for detecting and quantifying gene expression; for CC isolating related sequences and for chromosome mapping. The antibodies care used directly as therapeutic antagonists; for delivering drugs to Cells expressing HSWTH; as immunoassay reagents for delivering drugs to cells expressing HSWTH; as immunoassay reagents for diagnosis or C cells expressing HSWTH; as immunoassay reagents for diagnosis or C cells expressing HSWTH; as immunoassay reagents for diagnosis or C isolate the protein from natural sources.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HSMTH; SMT3-like protein; recombinant; foetal development; inflammation; cancer; radiation; DNA repair; carcinogenic; ataxia telangiectasia; sunscreen; therapeutic; cell proliferative disease; antagonist; asthma; Crohn's disease; rheumatoid arthritis; ribozyme; chromosome mapping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18-FEB-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Modified-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Modified-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Modified-site
                                                                                                                                                                                                                                                                                                                                This represents a human SMT3-like protein (HSMTH). Host cells transformed with expression vectors containing the HSMTH nucleic acid are used for the recombinant production of the protein. HSMTH, expressed in cDNA libraries associated with foetal development, inflammation, cancer and libraries associated with foetal development, inflammation, cancer and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    New human SMT3-like protein - for treatment, prevention and diagnosis of cancer and inflammation, and for promoting DNA repair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  09-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO9850545-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Modified-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Modified-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Modified-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    immunoassay; drug; screening.
                                                                                                                                                                                                                                                                                                      radiation damage, is used to promote DNA repair (before, during or after exposure to damage from radiation or carcinogenic compounds). The
                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 1; Fig 1A-B; 55pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hillman JL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (INCY-) INCYTE PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      06-MAY-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1999-034720/03.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SMT3-like protein (HSMTH).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAV79504.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Shah P;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note=
67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97US-0853974.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98WO-US08420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note=
88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /label= unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "potential phosphorylation site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "potential phosphorylation site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "potential myristoylation site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "potential phosphorylation site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "potential N-glycosylation site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "potential phosphorylation site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "encoded by ANA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "potential
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     myristoylation
```

Sequence

126 AA;

```
Вp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAG16580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                 08-APR-1999;
16-APR-1999;
19-APR-1999;
21-APR-1999;
23-APR-1999;
23-APR-1999;
23-APR-1999;
30-APR-1999;
30-APR-1999;
04-MAY-1999;
05-MAY-1999;
06-MAY-1999;
                                                                                                                                                                                                                                                                25-MAR-1999;
29-MAR-1999;
01-APR-1999;
06-APR-1999;
                                                                                                                                                                                                                                                                                                       25-FEB-1999;
05-MAR-1999;
09-MAR-1999;
23-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Protein identification; signal transduction pathway; metabolic pathway;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Arabidopsis thaliana protein fragment SEQ ID NO: 17280.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAG16580 standard; Protein; 111 AA
                                                                                                                                                                                                                                                                                                                                                                                             EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                              Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAG16580;
                          20-MAY-1999;
21-MAY-1999;
24-MAY-1999;
25-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                 termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                         hybridisation assay; genetic mapping; gene expression control; promoter;
                                                                                                                                                                                                                                                                                                                                                       25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          56 girfridgqpinetdtpaqlemededtidvfpssktgg 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 SLRFLFEGORIADNHTPKELGMEEEDVIEVY-QEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 mseekpke----gvktendhinlkvagqdgsvvqfkikrhtplsklmkaycerqglsmr 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSETHFKVKMTTHLKKLKESYCQRQGVPMN 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                        2000EP-0301439
                                                                                                             99US-0132487.
99US-0132484.
99US-0132486.
99US-0132486.
99US-0132487.
99US-0132863.
99US-0134256.
                  99US-0135353.
99US-0135629.
99US-0136021.
99US-0136392.
                                                                          99US-0134219.
99US-0134221.
99US-0134370.
99US-0134768.
                                                                                                                                                                                                                                                                                                        99US-0123548
99US-0125788
                                                                                                                                                                                                                                                                                                                            99US-0123180
                                                                                                                                                                                                                                                                                                                                       99US-0121825
                                                                                                                                                                                                                                       99US-0129845
99US-0130077
                                                                                                                                                                                                                                                          99US-0128714
                                                                                                                                                                                                                                                                                      99US-0126785
                                                                                                                                                                                                                                                                                                99US-0126264
                                                                 99US-0134941
                                                                                                                                                                                         99US-0132048
                                                                                                                                                                                                   99US-0130891
99US-0131449
                                                                                                                                                                                                                    99US-0130510
                                                                                                                                                                                                                               99US-0130449
                                                                                                                                                                                                                                                                   99US-0128234
                                                                                                                                                                                                                                                                             99US-0127462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 4.4e-18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 126;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6
```

```
19-JUL-1999
19-JUL-1999
19-JUL-1999
20-JUL-1999
20-JUL-1999
20-JUL-1999
21-JUL-1999
21-JUL-1999
22-JUL-1999
22-JUL-1999
22-JUL-1999
22-JUL-1999
23-JUL-1999
24-JUL-1999
27-JUL-1999
27-JUL-1999
27-JUL-1999
27-JUL-1999
27-JUL-1999
28-JUL-1999
29-JUL-1999
29-JUL
                                                                                                                                                                                                                                                                                                                                                                                                                                                           10-JUN 1999
16-JUN 1999
16-JUN 1999
17-JUN 1999
18-JUN 1999
21-JUN 1999
21-JUN 1999
21-JUN 1999
21-JUN 1999
23-JUN 1999
23-JUN 1999
23-JUN 1999
23-JUN 1999
24-JUN 1999
25-JUN 1999
26-JUN 1999
27-JUN 1999
28-JUN 1999
28-JUN 1999
28-JUN 1999
29-JUN 1999
29-JUN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3-JUN-1999;
4-JUN-1999;
7-JUN-1999;
8-JUN-1999;
0-JUN-1999;
           990S-0137528

990S-0137528

990S-0137724

990S-0139034

990S-0139452

990S-0139453

990S-0139453

990S-0139453

990S-0139453

990S-0139453

990S-0139453

990S-0139453

990S-0139453

990S-0139463

990S-0139463

990S-0139463

990S-0139463

990S-0139463

990S-0139463

990S-0139463

990S-0139463

990S-0140833

990S-0140833

990S-0140823

990S-0140823

990S-0140823

990S-0144331

990S-0145086

990S-0145086

990S-0145086

990S-0145218

990S-0145218

990S-0145218

990S-0145313

990S-0145313

990S-0145313

990S-0145313

990S-0145313

990S-0145313

990S-0145313

990S-0145313

990S-0145313

990S-0146386

990S-0146386

990S-0146386

990S-0146386

990S-0146388

990S-0146388

990S-0146388

990S-0147038

990S-0147038

990S-0147038

990S-0147038

990S-0147038
                                    Query Match
                                 05-AUG-1999
06-AUG-1999
06-AUG-1999
09-AUG-1999
11-AUG-1999
11-AUG-1999
12-AUG-1999
13-AUG-1999
13-AUG-1999
17-AUG-1999
17-AUG-1999
20-AUG-1999
20-AUG-1999
21-AUG-1999
23-AUG-1999
24-AUG-1999
25-AUG-1999
27-AUG-1999
28-SEP-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
22-CCT-1999
23-CCT-1999
24-CCT-1999
25-CCT-1999
26-CCT-1999
26-CCT-1999
26-CCT-1999
26-CCT-1999
26-CCT-1999
28-CCT-1999
29-CCT-1999
                               990S-0147260
990S-0147260
990S-0147416
990S-0147416
990S-0147493
990S-0148311
990S-0148311
990S-0148341
990S-0149368
990S-0149368
990S-0149722
990S-0149722
990S-0151080
990S-0152869
990S-0152869
990S-0152869
990S-0152869
990S-0159689
990S-0159689
990S-0159689
990S-0159689
990S-0159689
990S-0159689
990S-0159689
990S-0159689
990S-0160767
990S-0160767
990S-0160815
990S-0160768
990S-0161404
990S-0161369
990S-0161369
990S-0161369
990S-0161369
990S-0161369
990S-0161369
990S-0161361
990S-0161361
990S-0161361
   33.4%;
 Score 175.5;
 DB 21;
Length 111;
```

2;

```
RESULT 15
AAB57195
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
                                                                                                                     AAF15566 to AAF16505 encode the human prostate cancer associated proteins, called prostate cancer antigens, given in AAB56363 to AAB57302. The prostate cancer antigens can have neuroprotective, cytostatic, cardicactive, immunomodulatory, muscular, vulnerary, gastrointestinal, nephrotropic, antiinfective, gynaecological and antibacterial activities, and can be used in gene therapy. The prostate cancer antigen polynucleotides may be used for detection of prostate cancer, chromosome identification, as chromosome markers, and for numerous other diagnostic or research purposes. The prostate cancer antigens may be used to treat disorders such as neural, immune, muscular, reproductive, gastrointestinal, pulmonary, cardiovascular, renal, and proliferative disorders, wounds, and infectious diseases. AAF16506 to AAF16514 to AAB57303 represent sequences used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human; prostate cancer; prostate cancer antigen; detection; diagnosis; neuroprotective; cytostatic; cardioactive; immunomodulatory; muscular; vulnerary; gastrointestinal; nephrotropic; antiinfective; gynaecological; antibacterial; gene therapy; neural; immune; reproductive; renal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAB57195 standard; Protein; 145 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Prostate cancer associated gene sequences, referred to as prostate cancer antigens, useful for treatment, prevention, and diagnosis of disorders such as prostate cancer -  \frac{1}{2} \int_{-\infty}^{\infty} \frac{1}{2} \int_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             08-MAR-2000; 2000WO-US05988.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200055174-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human prostate cancer antigen protein sequence SEQ ID NO:1773.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13-MAR-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAB57195;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21-SEP-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 wound; infectious disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gastrointestinal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 11; Page 2238; 2338pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB; AAF16398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rosen CA, Ruben SM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (HUMA-) HUMAN GENOME SCI INC. (ROSE/) ROSEN C A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60 fifngariggletpdeldmedgdvidacramsgg 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ر.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLR 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qddkpi----dqeqeahvilkvksqdgdevlfknkksaplkklmyvycdrrglkldafa 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000-587513/55.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      38;
145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99US-0124270
A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pulmonary; cardiovascular; proliferative disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. 3.1e-13;
[7; Mismatches 34; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1;
```

Query Match Best Local Similarity

33.4%;

Score 175.5; DB 21; Pred. No. 4.4e-13;

Length 145;

Sequence

```
멍
                    QΥ
                                         В
                                                            Qy
                                                                                  Matches
106 qirfrfxgqpinxtdtpaqlgngrmkipmmcskqqtgg
                      61 SLRFLFEGQRIADNHTPKELGMEEEDV-IEVYQEQTGG
                                      1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMN 60
                                                                                   38;
                                                                                   Conservative
                                                                                   19;
                                                                                     Mismatches
    143
                         97
                                                                                      36;
                                                                                      Indels
                                                                                      5
                                                                                      Gaps
```

Search completed: August 15, 2001, 17:14:04 Job time: 3450 sec

Ratio:	235		TITLE  OURNAL SDLINE RENCE THORS CLE RNAL	seq_name: Locus Lo	
522.00 5.168	ubit, GenB Acce, Acce, Acce, Acce, Acce, Acce, Acce, Acce, Acce, Aprote Ab ar Arans, KLKES, a 153	Research 1 USA 1. /o /o /d1 /d1 /d1 /d1 /d1 /d1	Mahajar Mahajar A small to nucl Cell 86 97148692 2 (base Mahajan,)	seq_documentation_blots, LOCUS_COUMENTATION_HSU67122 ock: LOCUSSION_HSU67122 Ubiquit ERSION_U67122 Ubiquit EVWORDS_UCRES_UMDERS_	17 s 92 d 34 le 142 Tr 51 Tyr 192 Tr 192 Tr 67 ucry 242 GGCTC 84 Lucrus 292 AACAAC 101 Val 101 342 GTT 344
	Incte**Confugated Post-tium Clone ID: 49768, 51818, 199507, GenBank Accession Number Usiationally to Rangapi. Accession Number USI397 and GMP1 encoded by GenBank Protein: Similar to UBI Rangapi. Codon stan Number USI397 and GMP1 encoded by GenBank Protein-wrt-1 USI327 and GMP1 encoded by GenBank Character**(1:176293*.1*  Ab xref**(2:176293*.1* ACS0996.1* ACS0996.1* ACS0938APSTEDLODKKEGEYIKLKVIGOOG.  153 c 173 g 1556REIFEGORANSTERLES	Resumitted ""Lission",". Delphin,C., Gerace,L. and USA earch Institute, 10666 N. Torrey Pines Road, 1. 816 "Qualifiers "Ab Xref" "Homo Saptens" 81-386 "MAGE CO. 9666"	As Alajan, R. Delicazoa, Chordata, Craniata, Vertebrata, Euteleosto, Anajan, R. Delib, Primates, Catarrhini, Vertebrata, Euteleosto, Call Bear Pore complex protein RanBpj involved in targeting, Policar protein RanBpj involved in targeting paragraphs, R. K. 10816, Catarrhini, Guan Malajan, R. K. 10816, Policar protein RanBpj involved in targeting policar, R. K. Guan Malajan, R. K. Guan Malajan, R. K. Guan Malajan, Guan	9b_pr10:HSU67122 antation_block: HSU67122 Human ubiquitin U67122 1 GI:176 human human human human BULTargeriens BULTargeriens Mammaycta; Ma	17 SGInGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 92 GGAAGGTGAATATATTTAAACTCAAAGTTTAGACAGGATAGCATAGATICII 142 TTCACTTCAAAGTGAAAATGACACACACACACAGTGATAGAIII 51 TYCCYSGINASPGGAAAATGACACACACACACACACACACACACACACACAC
,	ated Post- ated Post- ated Prote ion Number or U6139 or U72722" 1" 2973" 2973" 2878FFFFEGOR 9 255	Jion". Delphin,C., Gerace,L. AUG-1965, Department of Cell Bi Gon Youallfiers  Sam="Homo Saplens" "MAGE CO., 5666"	Zoa; Chord 16; Prima 16) 16) 17: Felated J 17: Felated J Omplex pro 07 (1997) )	10:HSU67122 n_block: 7129 nubiquitin related   2:1 GI:1762972 aplens ota; Ma.	SGINGLYGLUTYITLELYSLEULYSVALILEGLYGLNASPSETSETGLUI 34 GGAAAGGTGAATATATAAACTCAAAGTCAATGGACAGGATAGCAGTGAAC TCAACTCCAAAGTCAATGGACAGGATAGCAGTGAAC TTCAACTCCAAAGTCAATGGACAGGATAGCAGTGAAC TTCAAGTCAAAATGCAACACACATGGACAAGACAA
į	um Clone ] translati in; simila r U38784, and GMP1	Plphin,C., Gerace,L. and Melchior,F. N. Torrey Pines Road, La Jolla, CA Piens"	tes; Cran; tes; Catar an, m., Ge; polypeptid otein Rang	mRNA Protein	LILLING LICE CAGGACAA  CAGGACAA  LILLIA  LILLI  LI
GMEEEDVIE	ID: 49768,  onally to  ir to UBil  PIC1 encoded by	race,L. an Cell Biolo nes Road,	rhini; Ho rhini; Ho Race,L. an le involve	mRNA Protein SUMO-1 mRNA,	allleglyg. CATTGGACA  SELEULYSI TCICAAGAA TCICAAGAA TISELEUA TISELEUA TISELEUA TISELEUA TISELUA TISELU
VYQEQTGGH:	51818, 199507, RanGAP1, encoded by ded by GenBank GenBank	and Melchior,F.	ebrata, E minidae, E d Melchio d in targe	ATTCAACA	Inaspserse IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
THI.	99507" by <sup>DB</sup> ank	AnnGAPI  HOr,F.  Scripps a, CA 92037,	Euteleostomi; Homo. for,F. Geting p.	341 15-FEB-1997	27G1u1 34 17GA6A 141 17GA6A 141 18GA 151 18GA 151 16GA 241 16 84 17 84 18 84 18 84
		iapı	ui;	7	

Length: Gaps:

Percent Identity: 99.010

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Align seg 1/1 to: HSU67122 from: 1 to: 816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-484-964-2 x HSU67122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seq_name: gb_pr10:HSU38784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                231 TACTGTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGA 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181 TTCACTTCAAAGTGAAAATGACAACATCTCAAGAAACTCAAAGAATCA 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           281 GGGTCAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGG 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      81 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTGGGGGATAAGAA 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                           CDS
                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTT 383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HSU38784 1017 bp mRNA PRI
Human ubiquitin-like protein mRNA, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                         RAD51/RAD52 proteins
Genomics 36 (2), 271-279 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Shen, Z., Pardington-Purtymun, P.E., Comeaux, J.C., Moyzis, R.K. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 1017)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   U38784.1 GI:1574947
                                                                                                                                                                                                                                                                                         Submitted (16-OCT-1995) Zhiyuan Shen, Life Sciences Division, Alamos National Lab, MS M888, Los Alamos, NM 87545, USA
                                                                                                                                                                                                                                                                                                                                          Shen, Z.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                         96411684
                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 1017)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a human ubiquitin-like protein associating with human
                                                                                                                       /note="This cDNA was cloned with the yeast two hybrid system. The protein interacts with human RAD51 and RAD proteins in yeast"
                                                                              /note="similar to ubiquitin and to yeast Smt3p (suppressor of MIF2); Method: conceptual translation supplied by
                                                                                                                                                                                                            /organism="Homo sapiens"
/db_xref="taxon:9606"
/protein_id="AAC50733.1"
/db_xref="GI:1574948"
                                                                                                                                                                                                                                                                       ocation/Qualifiers
                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16-OCT-1996
                                                                                                                                                                             RAD52
```

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq_name: gb_ro1:AF033353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Align seg 1/1 to: HSU38784 from: 1 to: 1017
                                                                                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-484-964-2 x HSU38784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity: 100.000
                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                    FEATURES
                                                                                                       AUTHORS
TITLE
                                                                                                                                                              JOURNAL
MEDLINE
                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                        JOURNAL
                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              217 TACTGTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGA 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          167 TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGTCAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGG 316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTT 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                            Mus musculus ubiquitin-homology domain protein (Ubl1) mRNA,
                                                                      Direct Submission
Submitted (07-NOV-1997) Medical & Molecular Genetics,
Hospital, 8th floor, Guy's Tower, London SE19RT, UK
                                                                                                                                                                              The ubiquitin-homology gene PIC1: characterization of mouse (Pic1) and human (UBL1) genes and pseudogenes genomics 47 (1), 92-100 (1998)
                                                                                                                                                                                                                                                      Howe, K., Williamson, J., Boddy, N., Sheer, D., Freemont, P. and
                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
1 (bases 1 to 1187)
                                                                                                                                                                                                                                                                                                                                                                                         AF033353.1 GI:2645736
                                                                                                                                                                                                                                                                                                                                                                                                                             complete cds.
                                                                                                                                                                                                                                        Solomon, E.
                                                                                                                                                                                                                                                                                                                                                        house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AF033353
                                                                    Hospital,
                                                                                                                         Howe, K., Freemont, P.S. and Solomon, E.
                                                                                                                                                                98126440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              310 a
                                                                                                                                          (bases 1 to 1187)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
KKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
a 180 c 213 g 314 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               522.00
                                 1. .1187
/organism="Mus musculus"
/strain="ICR"
                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1187 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            06-FEB-1998
```

```
VERSION
KEYWORDS
                                                                                           REFERENCE
                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                          seq_documentation_block:
LOCUS HSU61397
                                                                                                                                                                                                                                                                                                                                                              seq_name: gb_pr10:HSU61397
                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    alignment_block;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Align seg 1/1 to: AF033353 from: 1 to: 1187
                                                                                                                                                              ORGANISM
                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -09-484-964-2 x AF033353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   369 AAGAAGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGGTCACTCGACG 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       319 AGGTCAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                          419 GTT 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                       101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             269 TACTGTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGA 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  219 TACATTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        169 GGAAGGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGA 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheG1 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 1223)

Boddy, M.N., Howe, K., Etkin, L.D., Solomon, E. and Freemont, P.S.

PIC 1, a novel ubiquitin-like protein which interacts with the PML component of a multiprotein complex that is disrupted in acute
                                                                                                                                                                                                                                                          Human ubiquitin-homology domain protein PIC1 mRNA, complete cds
promyelocytic leukaemia
                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                           U61397.1 GI:1518693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Quality:
Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/codon_start=1
/product="ubiquitin-bomology domain protein"
/protein_id="Ac39959.1"
/protein_id="Ac39959.1"
/db_xref="GI:2645737"
/db_xref="GI:2645737"
/translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGODSSEIHFKVKMTTHL
/KIKESYCQRQGYPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            522.00
5.168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="Ubl1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="Pic1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="Ubl1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /map="C2-3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /chromosome="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                             1223 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps: 0
Percent Identity: 99.010
                                                                                                                                                                                                                                                                                             mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        267 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
                                                                                                                                                                                                                                                                                      14-JAN-1997
```

```
SOURCE
                                                                   KEYWORDS
                                                                                                             ACCESSION
                                                                                                                                                     DEFINITION
                                                                                                                                                                          seq_documentation_block:
LOCUS BC006462
                                                                                                                                                                                                                               seq_name: gb_pr7:BC006462
                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Align seg 1/1 to: HSU61397 from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-484-964-2 x HSU61397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                                                                                                           446 GTT 448
                                                                                                                                                                                                                                                                                                                                                                                                                        396 AAGAAGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACA 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    246 TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA 295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               196 GGAAGGTGAATATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA 245
                                                                                                                                                                                                                                                                                                                                                                     84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             146 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTGGGGGGATAAGAA 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                        Homo sapiens, ubiquitin-like 1 (sentrin), clone MGC:2095, mRNA,
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                     BC006462.1 GI:13623670 MGC.
                                                                                                             BC006462
                                                                                                                            complete cds.
                           Homo sapiens
                                                                                                                                                                      BC006462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Quality:
Ratio:
                                                  human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (20-JUN-1996) Somatic Cell Genetics, Imperial Cancer Research Fund, 44 Lincoln's Inn Fields, London WC2A 3PX, UK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Howe, K., Boddy, M.N., Etkin, D.E., Solomon, E. and Freemont, P.S. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Oncogene 13 (5), 971-982 (1996)
96400311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 1223)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="ubiquitin-homology domain protein PIC1"
/protein_id="AAB40388.1"
/db_xref="G1:1518694"
/translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
KKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV*
a 209 c 268 g 375 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       522.00
5.168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /tissue_type="placenta"
146. .451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                    1227 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Identity: 99.010
                                                                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               to: 1223
                                                                                                                                                             13-APR-2001
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Quality: 522.00
Ratio: 5.168
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                         Align seg 1/1 to: BC006462 from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-484-964-2 x BC006462 .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                          182 GGAAGGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA
                                                                                                                                                                                                                                              132 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTGGGGGGATAAGAA 181
                                34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                        17
                                                                                                                                                       sGlnGlyGluTyrIleLysLeuLysVallleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                           MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
Series: IRAL Plate: 8 Row: f Column: 12.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Steven Jones, Jennifer Asano, Ian Bosdet, Yaron Butterfield, Susanna Chan, Readman Chiu, Chris Fjell, Erin Garland, Ran Guin, Letticia Hsiao, Martin Krzywinski, Reta Kutsche, Oliver Lee, Soo Sen Lee, Victor Ling, Carrie Mathewson, Candice McLeavy, Steven Ness, Pawan Pandoh, Anna-Liisa Prabhu, Parvaneh Saeedi, Jacqueline Schein, Duane Smailus, Michael Smith, Lorraine Spence, Jeff Stott, Michael Thorne, Miranada Tsai, Natasja van den Bosch, Jill Vardy, George Vang Scott Judgen, Marco Marco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDNA Library Preparation: Rubin Laboratory CDNA Library Arrayed by: The I.M.A.G.E. CODNA Sequencing by: Genome Sequence Centre, BC Cancer Agency, Vancouver, BC, Canada info@bcgsc.bc.ca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NIH-MGC Project URL: http://mgc.nci.nih.gov
Contact: Robert Strausberg, Ph.D.
Tel: (301) 496-1550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (09-APR-2001) National Institutes of Health, Mammalian Gene Collection (MGC), Cancer Genomics Office, National Cancer Institute, 31 Center Drive, Room 11A03, Bethesda, MD 20892-2590,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: Robert_Strausberg
Tissue Procurement: ATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo... 1 (bases 1 to 1227)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Clone distribution: MGC clone distribution information can be found
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Strausberg, R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            George Yang, Scott Zuyderduyn, Marco Marra.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Robert_Strausberg@nih.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /Codon_start=1
/codon_start=1
/product="ubiquitin-like 1 (sentrin)"
/product="ubiquitin-like 1 (sentrin)"
/protein_id="AAH06462.1"
/db_xref="G1:13623671"
/translation="MSQDEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
/translation="MSQDEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
KKIKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
708 C 259 g 374 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /tissue_type="Placenta, choriocarcinoma"
/clone_lib="NIH_MGC_21"
/lab_host="DH10B-R"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Homo sapiens"
/db_xref="LocusID:7341"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="Vector: pOTB7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone="MGC:2095 IMAGE:3546125"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                         to: 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Consortium (LLNL)
                                                                                                                          231
```

```
alignment_block:
US-09-484-964-2 x AR087051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       seq_documentation_block:
LOCUS AR087051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             seq_name: gb_pat1:AR087051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                 alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                        Align seg 1/1 to: AR087051 from: 1
                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   332
336
                                                                                                                                                              236
                                                                                                                                                                                                                  186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          432 GTT 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               382 AAGAAGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACA 431
                                                                                                         286
                                                                                                                                                                                                                                                                     136 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTGGGGGGATAAGAA 185
                                                                                                                                                                                                                              17 sGlnGlyGluTyrIleLysLeuLysVallleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           67
                                                                               67
                                                                                                                                  51
                                                                                                                                                                           34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                   TACTGTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGA
                                                                                                                                  TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                  GGAAGGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA 235
                                                                             TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        l (bases 1 to 1514)
Baker, B.F. and Cowsert, L.M.
Antisense modulation of Sentrin expression
Patent: US 5985664-A 1 16-NOV-1999;
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1 from patent US AR087051
                                                                                                                                                                                                                                                                                                                                                                                                                   Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AR087051.1 GI:10013817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                      Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      462 a
                                                                                                                                                                                                                                                                                                                                                                                       522.00
5.168
100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ∕organism="unknown"
256 c 314 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .1514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1514 bp
                                                                                                                                                                                                                                                                                                                                                                                        Gaps:
Percent Identity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5985664
                                                                                                                                                                                                                                                                                                                          to: 1514
                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      482
                                                                                                                                                                                                                                                                                                                                                                                        101
0
99.010
                                                                                                                                                                                       50
                                                      385
                                                                                84
                                                                                                         335
                                                                                                                                                               285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          07-SEP-2000
```

**GTT 438** 

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                               alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seq_name: gb_pr10:HSU83117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                   US-09-484-964-2 x HSU83117
                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                               Align seg 1/1 to: HSU83117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
source
                                                                                                                                                        186 GGAAGGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA 235
                                                                                              34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                        17 sGlnGlyGluTyrIleLysLeuLysVallleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                  1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                            TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA 285
                                                                                                                                                                                                                                                                                                                                                                                                                             Quality:
Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chang,H.-M. and Yeh,E.T.H.

Protection Against Fas/APO-1. and Tumor Necrosis Factor-Mediated Cell Death by a Novel Protein, Sentrin
J. Immunol. 157(10), 4277-4281 (1996)
2 (bases 1 to 1514)
0kura,T., Gong,L., Kamitani,T., Wada,T., Okura,I., Wei,C.-F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (23-DEC-1996) Division of Molecular Medicine, Department of Internal Medicine, and Cardiovascular Research Center, Institute of Molecular Medicine for the Prevention of Human Diseases, The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chang, H.-M. and Yeh, E.T.H.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human sentrin mRNA, U83117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            University of Texas-Houston Health Science Center, 2121 W. Holcombe
Blvd., Suite 900, Houston, TX 77030, USA
    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 1514)

Okura, T., Gong, L., Kamitani, T., Wada, T., Okura, I., Wei, C.-F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          U83117.1 GI:1769601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               462 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             522.00
5.168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tissue_type="placenta"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="ubiquitin-like protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1514 bp
                                                                                                                                                                                                                                                                                                             from: 1
                                                                                                                                                                                                                                                                                                                                                                                                           Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complete cds
                                                                                                                                                                                                                                                                                                             to: 1514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  09-JAN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      institute
```

```
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq_documentation_block:
LOCUS AC084066 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq_name: gb_htg17:AC084066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           436 GTT 438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   386 AAGAAGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACA 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                Consensus quality: 214207 bases at least Q40 Consensus quality: 223053 bases at least Q30 Consensus quality: 225208 bases at least Q20 Consensus quality: 225208 bases at least Q20 Estimated insert size: 200000; pulse field gel estimation Estimated insert size: 200000; pulse field gel estimation Quality coverage: 11.56 in Q20 bases; pulse field gel estimation Quality coverage: 9.94 in Q20 bases; sum-of-contigs estimation.*
* NOTE: This is a "working draft" sequence. It currently consists of 29 contigs. The true order of the pieces is not known and their order in this sequence record is the pieces that the consists of the pieces is not known and their order in this sequence record is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 (bases 1 to 235411)
DOE Joint Genome Institute.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Center: Joint Genome Institute Center Code: JGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (12-OCT-2000) Production Sequencing Facility, DOE Joint Genome Institute, 2800 Mitchell Drive, Walnut Creek, CA 94598, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 (bases 1 to 235411)
DOE Joint Genome Institute.
Sequencing of Mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Summary Statistics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Center clone name: RPCI-23_321D1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Center Project Name: 2351294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Project Information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Web site: http://www.jgi.doe.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HTG; HTGS_PHASE1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AC084066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AC084066.1 GI:10799415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          unordered pieces.
                                                                                                                                                                                                                                                         arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will be preserved.
                   1211
1311
3241
3341
4505
4605
6173
6273
7355
7455
8626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             235411 bp 23-321D1,
                                                                                                                                                                  4504:
                                                                                                                                                                                                     1210:
1310:
3240:
                                                                                                                                                                  gap of contig
               gap of
contig
                                                    gap of contig
                                                                                        gap of
contig
                                                                                                                                               gap of
                                                                                                                                                                                                   contig of 1210 bp in length
gap of unknown length
contig of 1930 bp in length
gap of
                                                                                                                             contig
                                                    unknown
of 1171
                                                                                        unknown
of 1082
                                                                                                                             unknown
of 1568
                                                                                                                                                                  unknown
of 1164
               unknown
of 1389
 unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               *** SEQUENCING IN PROGRESS ***,
             bp in length length bp in l
                                                                                                                                                                  length
bp in l
                                                                                        length
bp in 1
                                                                                                                             bp in
                                                                                                                                                  length
                 length
                                                                                                                                                                  length
                                                      length
                                                                                        length
                                                                                                                             length
                                                                                                                                                                                                                                                                                                                                                                                                                               gel estimation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29
```

```
alignment_block;
                                                                                                                                                                                                                          alignment_scores:
                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                           Align seg 1/1 to reverse of: AC084066 from: 1 to: 235411
                                                                                                                                                     US-09-484-964-2 x AC084066/rev
                                                                                                                                                                                         Percent Similarity: 100.000
                               113106 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTAGGCGATAAGAA 113057
34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                 source
                                                                                           1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                              Quality:
                                                                                                                                                                                                     Ratio:
                                                                                                                                                                                                                                                                        62132 a
                                                                                                                                                                                                                                                                                                                                                                            160185
160285
                                                                                                                                                                                                                                                                                                                                                                  186699
                                                                                                                                                                                                                                                                                                                                                                                                   132216
                                                                                                                                                                                                                                                                                                                                                                                                               132116
                                                                                                                                                                                                                                                                                                                                                                                                                          114088
                                                                                                                                                                                                                                                                                                                                                                                                                                     113988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   66319
76779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  59109
                                                                                                                                                                                                                                                                                                                                                                                                                                                98199
                                                                                                                                                                                                                                                                                                                                                                                                                                                           98099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      76879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      39850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10215
12092
12192
14114
14214
14214
15287
15387
17840
17940
                                                                                                                                                                                                                                                                /Organism="Mus musculus"
/db_xref="taxon:10090"
/clone="RPZ3-321D1"
/clone_lib="RPCI mouse BAC library 23"
/s4445 c 54225 g 61806 t 2803 othe
                                                                                                                                                                                                   518.00
5.129
                                                                                                                                                                                                                                                                                                                               1. .235411
                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                              132215: gap of unknown length
160184: contig of 27969 bp in length
160284: gap of unknown length
186698: contig of 26414 bp in length
186798: gap of unknown length
235411: contig of 48613 bp in length
                                                                                                                                                                                     Percent Identity: 98.020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                               gap of unknown length contig of 21220 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          contig of 10460 bp in length gap of unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gap of unknown length contig of 7110 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  contig
gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                    gap of unknown length contig of 18028 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                              contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gap of unknown length contig of 7432 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gap of contig gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                contig
                                                                                                                                                                                                                                                                                                                                                                                                                                       unknown length
of 15789 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of 2206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of 5447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of 4944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of 4914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      of 3186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                of 2327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of 2453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of 1073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of 1635
                                                                                                                                                                                                              Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of 1922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of 1877 bp in length
                                                                                                                                                                                               Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                length
bp in l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  dq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bp in length
length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       bp in length
length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ength
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ength
                                                                                                                                                                                                                                                                  2803 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 length
```

ORIGIN

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                        alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                          Align seg 1/1 to: AF242526 from: 1 to: 510
                                                                                                                                                                                                                                                                  US-09-484-964-2 x AF242526
                                                                                                                                                                                                                                                                                                                           Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            seq_name: gb_om:AF242526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    112806 GTT 112804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     112856 AAGAAGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCACTCGACG 112807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     112906 AGGTCAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   112956 TACTGTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGA 112907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               113006 TACATTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA 112957
                                                        179 GGAAGGAATATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA 228
                                                                                                                                        129 ATGTCTGACCAGGAAGCAAAACCTTCAACCGAGGACTTGGGGGGATAAGAA 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer
                                                                                              17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                           1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            84 luGluAspValI1eGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          67 uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                   Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (07-MAR-2000) Dept. of Immunology, Norman Bethune University of Medical Sciences, Xin Min Street, Changchun, 2 130021, People's Republic of China
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 (bases 1 to 510)
Sun, L.G., Yu, Y.L. and Jiang, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervoidea; Cervinae; Cervinae; Cervus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cervus nippon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cervus nippon sentrin mRNA, complete cds. AF242526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AF242526.1 GI:9664276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sika deer.
                                                                                                                                                                                                                                                                                                                                                    Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      154 a
                                                                                                                                                                                                                                                                                                                                                517.00
5.119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="sentrin"
/protein_id="AAF97049.1"
/db_xref="GI:9664277"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="authority: Cervus nippon Temminck"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Cervus nippon"
/db_xref="taxon:9863"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             510 bp
                                                                                                                                                                                                                                                                                                                         Percent Identity: 98.020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                121 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA
                                                                                                                                                                                                                                                                                                                                                                   Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Xin Min Street, Changchun, Jilin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       112857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         03-AUG-2000
```

```
seq_documentation_block:
LOCUS AL513282 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq_name: gb_htg22:AL513282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  279 TACTGTCAAAGACAGGGAGTTCCTATGAATTCACTCAGGTTTCTCTTTGA 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        229 TTCACTTCAAAGTGAAAATGACGACACATCTCAAGAAACTCAAAGAATCA 278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      429 GTT 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          67 uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                                                  Assembly program: XGAP4/ version 4.5
sequencing vector: plasmid; L08752; 100% of reads
Chemistry: Dye-terminator Big Dye; 100% of reads
Consensus quality: 153015 bases at least Q40
Consensus quality: 153938 bases at least Q30
Consensus quality: 154555 bases at least Q20
Insert size: 155213; sun-of-contigs
Insert size: 154818; 1.0% error; agarose-fp
Quality coverage: 6.89x in Q20 bases; sum-of-contigs Quality
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        requests: clonerequest@sanger.ac.uk
On Feb 28, 2001 this sequence version replaced gi:13161719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (25-FEB 2001) Sanger Centre, Hinxton, Cambridgeshire, CB10 1SA, UK. E-mail enquiries: humquery@sanger.ac.uk Clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 155913)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens chromosome 1 clone RP11-179G5, *** SEQUENCING IN PROGRESS ***, 8 unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HTG; HTGS_PHASE1; HTGS_DRAFT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AL513282.5 GI:13162044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Center project name: bA179G5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Web site: http://www.sanger.ac.uk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Center: Sanger Centre
                                                                                                                                                                                                                                                                                                                                                                                                      coverage: 7.27x in Q20 bases; agarose-fp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Center code: SC
                                                                                                                                                                                        NOTE: This is a 'working draft' sequence. It currently consists of 8 contigs. The true order of the pieces is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will be preserved.
20838: contig of 20838 bp in length 20839 20938: gap of 100 bp 20939 50589: contig of 29651 bp in length 50590 50689: gap of 100 bp 50590 81538: contig of 30849 bp in length 81539 81638: gap of 100 bp 81638: gap of 100 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---- Genome Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155913 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          --- Summary Statistics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      - Project Information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        alignment_block:
US-09-484-964-2 x AL513282/rev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         43830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1. .155913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  vector_side:left"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 clone_end:T7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          512.00
5.120
99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /chromosome="1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  clone="RP11-179G5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       108206. .149395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .20838
```

```
Align seg 1/1 to reverse of: AL513282 from: 1 to: 155913
                                                                                                                                                                                                                                                                                                                                                        136355 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTGGGGGGATAAGAA 136306
                                                                                                                                                                                                                                                                   136305 GGAAGGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA 136256
                                                                                    136205 TACTGTCAAAGACAGGGCGTTCCAATGAATTCATTCAGGTTTCTCTTTGA 136156
                                                                                                                                                                            136255 TTCACTTCAAAGTGAAAATGACAACACCTCAAGAAACTCAAAGAATCA 136206
                                                                                                                                                                                                                                                                                        17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
51 TyrcysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                      34 leHisPheLysValLysMctThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            108206 149395; contig of 41190 bp in length
149396 149495; gap of 100 bp
149496 153075; contig of 3580 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             89783 108105: contig of 18323 bp in length 108106 108205: gap of 100 bp 108206 149395: contig of 41190 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 153076 153175: gap of 100 bp
153176 155913: contig of 2738 bp in length
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20939. .50589
/note="assembly_fragment:01236
fragment_chain:1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fragment_chain:2"
89783. 108105
/note="assembly_fragment:00942
fragment_chain:3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81639. .89682
/note="assembly_fragment:03283
fragment_chain:2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            50690. .81538
/note="assembly_fragment:00478
fragment_chain:2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="assembly_fragment:03083
fragment_chain:4"
a 34529 c 35326 g 41527 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="assembly_fragment:02486
fragment_chain:4"
153176. .155913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="assembly_fragment:02750
fragment_chain:3"
149496..153075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="assembly_fragment:02743
fragment_chain:1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 clone_lib="RPCI-11.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Identity: 97.030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 701 others
```

```
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      seq_name: gb_htg21:AL359981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    136105 AAGAAGATGTGATTGAAGTTTATCAGGAACAAATGGGGGGGTCATTCAACA 136056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             136055 GTT 136053
                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           84 luGluAspValI1eGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           * NOTE: This is a 'working draft' sequence. It currently consists of 7 contigs. The true order of the pieces is not known and their order in this sequence record is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Assembly program: XGAP4; version 4.5 Sequencing vector: plasmid; L08752; 100% of reads Chemistry: Dye-terminator ET-amersham; 16% of reads Chemistry: Dye-terminator Big Dye; 83% of reads
Consensus quality: 16507% bases at least Q40
Consensus quality: 165122 bases at least Q30
Consensus quality: 16551% bases at least Q20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Insert size: 166440; sum-of-contigs
Insert size: 138972; 3.5% error; agarose-fp
Quality coverage: 6.33x in Q20 bases; sum-of-contigs Quality
coverage: 8.08x in Q20 bases; agarose-fp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Web site: http://www.sanger.ac.uk
Contact: humquery@sanger.ac.uk
Project Information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (20-JAN-2001) Sanger Centre, Hinxton, Cambridgeshire, CB10 1sA, UK. E-mail enquiries: humquery@sanger.ac.uk Clone requests: clonerequest@sanger.ac.uk
On Jan 22, 2001 this sequence version replaced gi:10186747.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Center project name: bAll5N23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Center code: SC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Center: Sanger Centre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 167440)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AL359981 167440 bp DNA HTG 20-JAN-2001
Homo sapiens chromosome 1 clone RP11-115N23, *** SEQUENCING IN
PROGRESS ***, 7 unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HTG; HTGS_PHASE1; HTGS_DRAFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AL359981.10 GI:12331082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             be preserved
                                                                                                                                                                                                                                                                                      34811 34910: gap of 100 bp 34911 125180: contrig of 90270 bp in length 125181 125280: gap of 100 bp 125281 129032: contrig of 3752 bp in length 129033 129132: gap of 100 bp 129133 132599: contrig of 3467 bp in length 129660 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 129560 12
                                                                                                                         132600 132699; gap of 100 bp
132700 141603: contig of 8904 bp in length
141604 141703; gap of 100 bp
141704 167440: contig of 25737 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17991: contig of 17991 bp in length
17992 18091: gap of 100 bp
18092 34810: contig of 16719 bp in length
34811 34910: gap of 100 bp
34911 125180: contig of 90270 bp in length
                     /organism="Homo sapiens"
                                                                                                        Location/Qualifiers
                                                                          .167440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            167440 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ·-- Summary Statistics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -- Genome Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Information
                                                                                                                                      bp in length
KEYWORDS
                                       VERSION
                                                                          ACCESSION
                                                                                                                         DEFINITION
                                                                                                                                                                 seq_documentation_block:
LOCUS AX021844
                                                                                                                                                                                                                                                                         seq_name: gb_pat1:AX021844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
                                                                                                                                                                                                                                                                                                                                                            154127 GTT 154125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                               101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                     AX021844.1 GI:10045087
                                                                                                                                                            AX021844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ratio:
```

COMMENT

TITLE

SOURCE

FEATURES

```
Align seg 1/1 to reverse of: AL359981 from: 1 to: 167440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-484-964-2 x AL359981/rev
                                                                                                                                                                                  154177 AAGAAGATGTGATTGAAGTTTATCAGGAACAAATGGGGGGGTCATTCAACA 154128
                                                                                                                                                                                                                                                     154277 TACTGTCAAAGACAGGGCGTTCCAATGAATTCATTCAGGTTTCTCTTTGA 154228
                                                                                                                                                                                                                                                                                                                                                                                             154327 TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA 154278
                                                                                                                                                                                                                                                                                                                                                                                                                                                               84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                                                 34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                           51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
Sequence 18 from Patent Ep0861322. AX021844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="assembly_fragment:00528"
141704. 167440
/note="assembly_fragment:02701"
47457 a 37675 c 35802 g 45906 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      512.00
5.120
99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="assembly_fragment:00856
fragment_chain:1"
132700. .141603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      129133. .132599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="assembly_fragment:01240
fragment_chain:1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="assembly_fragment:03000
fragment_chain:1"
125281. .129032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="assembly_fragment:02116
fragment_chain:1"
34911. .125180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="assembly_fragment:00134
fragment_chain:1"
18092. .34810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone_lib="RPCI-11.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="RP11-115N23"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:9606"
/chromosome="1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Identity: 97.030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         600 others
                             07-SEP-2000
```

```
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     alignment_block:
                                                                                                                                                                                                                                                                                       seq_documentation_block:
                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Align seg 1/1 to: AX021844 from: 1 to: 372
                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                     seq_name: gb_ov:XLSUMO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-484-964-2 x AX021844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                              REFERENCE
                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                           ORGANISM
                                             MEDLINE
                                                                               TITLE
                                                                                                             AUTHORS
   TITLE
                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            130 GGAAGGTGAATATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 230 TACTGTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGA 279
                                                                                                                                                                                                                                                                                                                                                                                                                                 330 AAGAAGTTGTGATTGAAGTTTATCAGGAACAAACGGGGGGT 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                      84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGly 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Quality:
Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and viral proteins required for replication Patent: EP 0861322-A 18 02-SEP-1998;
MOUNT SINAI MEDICAL CENTER (US)
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 372)
O'Neill,R. and Palese,P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          unidentified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Antiviral compounds that inhibit interaction of host cell proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         unidentified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             unclassified
Sparrow, D.B.
Direct Submission
                                                          Saitoh,H., Sparrow,D.B., Shiomi,T., Pu,R.T., Nishimoto,T., Mohun,T.J. and Dasso,M. Ubc9p and the conjugation of SUMO-1 to RanGAP1 and RanBP2 COLT. Biol. 8 (2), 121-124 (1998)
                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                           African clawed frog. xenopus laevis
                                                                                                                                                                                                                           SUMO-1 gene.
                                                                                                                                                                                                                                           Z97073.1 GI:2791891
                                                                                                                                                                                                                                                                          Xenopus laevis SUMO-1 mRNA, partial cds.
                                                98089176
                                                                                                                                               Xenopodinae; Xenopus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121 a
                                   (bases 1 to 466)
                                                                                                                              (bases 1 to 466)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="taxon:32644"
72 c 97 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="unidentified"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98.969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       492.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5.125
                                                                                                                                                                                                                                                                                            466 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps: 0
Percent Identity: 97.938
                                                                                                                                                                                                                                                                                              mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       82 t
                                                                                                                                                                                                                                                                                                                                                                                                                                             329
                                                                                                                                                                                                                                                                                                 16-JAN-1998
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                  alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                        Align seg 1/1 to: XLSUMO from: 1 to: 466
                                                                                                                                                                                                                                                                                                                                                                                  US-09-484-964-2 x XLSUMO
                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity: 98.020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                          208 TCATACCGTCAGAGACAGGGCGTTCCAATGAATTCTCTCAGGTTTTTGTT 257
                                                                                                                                                                                                                                                                                                  100 Thr 100
                                                                                 258
                                                                                                           66
                                                                                                                                                                 50
                                                                              SerTyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPh 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (19-JUN-1997) Developmental Biology, National Institute for Medical Research, The Ridgeway, Mill Hill, London NW7 1AA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              United Kingdom
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                             Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             138 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="sptrembl:057686"
/db_xref="sptrembl:057686"
/translation="msDQEAKPSSEDLGDKKDGGDYIKLKVIGQDSSEIHFKVKMTTH
/translation="msDQEAKPSSEDLGDKKDGGDYIKLKVIGQDSSEIHFKVKMTTH
LKKLKESYRQRQGVPMNSLRFLFEGQRISDHQTPKELGMEEEDVIEVYQEQTGGHSTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="SUMO-1 protein"
/protein_id="CAB09807.1"
/db_xref="GI:2791892"
                                                                                                                                                                                                                                                                                                                                                                                                                                           470.50
4.753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="SUMO-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="SUMO-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="taxon:8355"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Xenopus laevis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  . 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              89 c
                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Identity: 92.079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              102 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 137 t
                                                                                                                                                                                                                                                          157
                                                                                                                                                                                                    207
```

4		٠			
%					
			•		

```
SIDSI/gcgdata/genesed/yeneseqn/NA199.pdf:AAF5399+
/SIDSI/gcgdata/genesed/geneseqn/NA2001.DAT:AAF5399+
/SIDSI/gcgdata/genesed/geneseqn/NA2001.DAT:AAF5399+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAA63182+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAA63182+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAA63183+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAA631186+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAA631186+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAA631186+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAA631174-
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAA631177+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAA631177+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAA631177+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAF16398+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAF16398+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAF15690+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAF15690+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAF15690+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAA639723+
/SIDSI/gcgdata/genesed/geneseqn/NA2000.DAT:AAA31107+
/SIDSI/gcgdata/genesed/genese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          About: Results were produced by the GenCore software, version 4.5, Copyright (c) 1993-2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Command line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Date: Aug 15, 2001 6:01 PM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OM of: US-09-484-964-2 to: N_Geneseq_0601:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Database: N_Geneseq_0601:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query length: 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Search information block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Search time (sec): 126.210000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Database sequences: 730101
Database length: 313950809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /SIDS1/gcgdata/geneseq/geneseqn/Na2000.DAT:AAZ35859
/SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAZ6315
/SIDS1/gcgdata/geneseq/geneseqn/NA1997.DAT:AAZ63339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -USER-US09484964_@CGN1_1_190 -NCPU-6 -ICPU-3 -LONGLOG -NO_XLPXY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -WAIT -THREADS=1
/SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAF08638
/SIDS1/gcgdata/geneseq/geneseqn/NA1995.DAT:AAF22164
/SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAC37259
/SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAX56954
/SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAX56954
/SIDS1/gcgdata/geneseq/geneseqn/NA1997.DAT:AAC46564
/SIDS1/gcgdata/geneseq/geneseqn/NA1997.DAT:AAX56955
/SIDS1/gcgdata/geneseq/geneseqn/NA1999.DAT:AAX56955
/SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAX56955
                                                                                                                                                                                                 /SIDS1/gcgdata/geneseq/geneseqn/NA1993.DAT:AAQ59135
/SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAC46467
/SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAC34120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-484-964-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      out_format : pfs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Documentation
525.00 1244.93
522.00 1239.77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          210
199
199
188
185
185
                                                                                                                                                                                                                                                                                                                                                                             168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1200.63
1179.22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1084.60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         526.74
519.30
516.94
517.11
512.12
510.36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.0e-57
9.8e-55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6.0e-61
6.6e-59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .4e-61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .5e-61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .0e-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .9e-52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .3e-61
                                                                                    0.0006
                                                                                                            0.0002
                                                                                                                                                              8.9e-05
                                                                                                                                                                                                                                      6.3e-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .2e-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .3e-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8e-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .0e-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .9e-21
                                                                                                                                       .0006
                                                                                                                                                                                                                                                           .3e-1
                                                                                                                                                                                                                                                                                   .8e-1
                                                                                                                                                                                                                                                                                                                                                          .4e-J
                                                                                                                                                                                                                                                                                                                                                                                  4e-14
                                                                                                                                                                                                                                                                                                                                                                                                                                  4e-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4e-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0e-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9e-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5e-20
                                     .0002
                                                            .0004
                                                                                                                                                                                                                                                                                                                                   .9e-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                            7e-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Te-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1e-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9e-20
                                                                                                                                                                                    . 8e-05
                                                                                                                                                                                                                                                                                                             3e-1
                                                                                                                                                                                                         6e-10
                                                                                                                                                                                                           3903
14862
1487
1859
1859
632
1537
315
315
315
315
243
302
212
212
212
212
212
213
```

alignment\_scores:

Quality: Ratio:

525.00

Percent Identity: 100.000

Length:

alignment\_block:

Percent Similarity: 100.000

US-09-484-964-2 x AAV34564 Align seg 1/1 to: AAV34564

1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17

from: 1

to: 1465

```
/SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAC46484 + /SIDS1/gcgdata/genesed/geneseqn/NA2000.DAT:AAC40446 + /SIDS1/gcgdata/genesed/geneseqn/NA2000.DAT:AAC42799 + /SIDS1/gcgdata/genesed/genesedn/NA2000.DAT:AAF55256 + /SIDS1/gcgdata/genesed/genesedn/NA2001.DAT:AAF55246 + /SIDS1/gcgdata/genesed/genesed/genesedn/NA2001.DAT:AAF55246 + /SIDS1/gcgdata/genesed/genesed/genesed/NA2001.DAT:AAF55246 + /SIDS1/gcgdata/genesed/genesed/genesed/NA2001.DAT:AAF55246 + /SIDS1/gcgdata/genesed/genesed/genesed/genesed/NA2001.DAT:AAF55246 + /SIDS1/gcgdata/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/genesed/gene
seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA1998.DAT:AAV34564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAV34564 standard; DNA; 1465 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sentrin-1; protection; tumour necrosis factor; tnf; apoptosis;
Fas/APO-induced; tumour cell death; induction; tumour aggressiveness;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11-SEP-1998 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAV34564;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens sentrin-1 gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   detection; determination; ss.
                                                   The sequence is that encoding the sentrin-1 polypeptide. Sentrin polypeptides have the ability to protect or guard cells from tumour necrosis factor (TMF) or Fas/APO induced cell death (apoptosis). Inhibitors of the sentrin polypeptides, e.g. antibodies, can be used for inducing cell death, e.g. antibodies, can be used for inducing cell death, e.g. antibodies. The products can also be used for particularly in tumours. The products can also be used for determining the aggressiveness of a tumour and for detection and isolation of products. The sentrin polypeptide can also be used to detect a ubiquitin conjugating enzyme polypeptide or PML polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (TEXA ) UNIV TEXAS SYSTEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               05-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         05-NOV-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14-MAY-1998.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9820038-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P-PSDB; AAW60079.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Yeh ETH;
                                                                                                                                                                                                                                                                                                                                                         Claim 10; Page 76-77; 120pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 1998-286868/25.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   New isolated sentrin polypeptide(s) - which inhibit TNF receptor or ras/APO-induced apoptosis, used to develop products for inducing
                                                                                                                                                                                                                                                                                                                                                                                                                         cell death in tumours
Sequence 1465 BP; 455 A; 248 C; 292 G; 470 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     96US-0030302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97WO-US20344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product= sentrin-1 polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           88..393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98.00
98.00
96.00
96.00
94.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       219.25
219.02
224.37
197.14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.0003
0.0003
0.0002
0.0052
0.0014
```

```
Seq_documentation_block:
ID AAV59722 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA1998.DAT:AAV59722
                                                                                                                                          07-MAR-1997;
07-MAR-1997;
07-MAR-1997;
                                                                                                                              07-MAR-1997
                                                                                                                                                                              07-MAR-1997;
07-MAR-1997;
                                                                                                                                                                                                                                                                                                                              Human; secreted protein; fusion protein; gene therapy; protein therapy; diagnosis; tissue; cancer; tumour; neurodegenerative disorder; leukaemia; immune system; asthma; lymphocytic disease; brain; hepatic; lymphoma; inflammation; ischaemic shock; Alzheimer's disease; restenosis; AIDS; cognitive disorder; schizophrenia; prostate; obesity; osteoclast; thymus; endocrine; metabolism; regulation; malabsorption; gastritis; neoplasm.
                                                                                                                                                                                                       07-MAR-1997
                                                                                                                                                                                                                02-OCT-1997;
07-MAR-1997;
                                                                                                                                                                                                                                                    06-MAR-1998;
                                                                                                                                                                                                                                                                           11-SEP-1998
                                                                                                                                                                                                                                                                                                 WO9839448-A2.
                                                                                                                                                                                                                                                                                                                        Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                Human secreted protein gene 47 clone HOGAV75.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19-JAN-1999 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAV59722 standard; DNA; 1196 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        388 GTT 390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       238 TACTGTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGA 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         97US-0040336
97US-0040626
97US-0043311
97US-0043313
97US-0043313
97US-0043314
97US-0043568
97US-0043578
97US-0043578
97US-0043578
                                                                                                                                               97US-0040163.
97US-0040333.
97US-0040334.
                                                                                                                                                                                                  97US-0061060.
97US-0038621.
97US-0040161.
                                                                                                                                                                                                                                               98WO-US04493.
                                                                                                                                                                                     97US-0040162.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 84
      22-AUG-1997
                                                                                                                                                                   18-AUG-1997
22-AUG-1997
                                                                                                                                                                                                                                                                                                                                                              23-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23-MAY-1997;
23-MAY-1997;
23-MAY-1997;
23-MAY-1997;
23-MAY-1997;
23-MAY-1997;
23-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-APR-1997;
11-APR-1997;
11-APR-1997;
11-APR-1997;
11-APR-1997;
23-MAY-1997;
23-MAY-1997;
97US-0056892.
97US-0056893.
97US-0056894.
97US-0056903.
                                              97US-0056875.
97US-0056876.
97US-0056877.
97US-0056877.
97US-0056880.
97US-0056881.
97US-0056881.
97US-0056884.
97US-0056886.
97US-0056886.
97US-0056888.
                                                                                                                                                                                        970S 0056636
970S 0056637
970S 0056664
970S 0056664
970S 0056845
970S 0056864
970S 0056864
970S 0056872
970S 0056872
                                                                                                                                                                                                                                                                                                                                                97US-0047590

97US-0047593

97US-0047593

97US-0047594

97US-0047596

97US-0047596

97US-0047601

97US-0047613

97US-0047613

97US-0047614

97US-0047617

97US-0047618

97US-0047633

97US-004894

97US-0049610

97US-0049610

97US-0049610

97US-0049610
                                                                                                                                                                                                                                                                                                                                       97US:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97US-0047587.
97US-0047588.
97US-0047589.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   970S-0047500

970S-0047501

970S-0047502

970S-0047503

970S-0047503

970S-0047582

970S-0047583

970S-0047584

970S-0047586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97US-0043669.
97US-0043670.
97US-0043671.
```

```
alignment_scores:
Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This sequence represents a nucleic acid molecule designated Gene 47 from the human cDNA clone HOGANT5 (deposited as clone ATCC 97897 and ATCC 209043) which encodes a secreted human protein. The gene can be used to generate fusion proteins by linking to the gene to a human immunoglobulin Fc portion (e.g. AAV59502) for increasing the stability of the fused protein as compared to the human protein only.

The invention relates to 186 novel genes and their fragments (nucleic acid sequences: AAV59511-V59812; amino acid sequences AAW74731-W75026) which are useful for preventing, treating or ameliorating medical conditions e.g. by protein or gene therapy. Also, pathological conditions can be diagnosed by determining the amount of the new polynucleotides. Specific uses are described for each of the 186 the new polynucleotides. Specific uses are described for each of the 186 polynucleotides, based on which tissues they are most highly expressed in
                                                                                                                                                                                                                                                                                                                                        Align seg 1/1 to: AAV59722
                                                                                                                                                                                                                                                                                                                                                                        US-09-484-964-2 x AAV59722
                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22-AUG-1997;
22-AUG-1997;
05-SEP-1997;
05-SEP-1997;
05-SEP-1997;
12-SEP-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New isolated human genes and the secreted polypeptide(s) they encode - useful for diagnosis and treatment of e.g. cancers, neurological disorders, immune diseases, inflammation or blood disorders
                                                                     284
                                                                                                                                      234
                                                                                                                                                                                                       184
                                                                                                                                                                                                                                                                    134 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTGGGGGATAAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1196 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 1; Page 449; 721pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 1998-506364/43.
P-PSDB; AAW74938.
                                    67
                                                                                                   51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (HUMA-) HUMAN
                                                                                                                                                    34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer
                                                                                                                                                                                                                                        17
                                                                                                                                                                                                                                                                                    1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl
                                                                                                                                                                                                                   sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                  TACTGTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGA
                                                                                                                                    TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA
                                                                                                                                                                                                     GGAAGGTGAATATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               , ±,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAV59511 for described uses).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lafleur DW, Li Y, Moore PA, N. Shi Y, Soppet DR, Young PE,
                                                                                                                                                                                                                                                                                                                                                                                                                                            Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ferrie AM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Brewer LA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97US-0056908
97US-0056910
97US-0056910
97US-0056911
97US-0057650
97US-0057650
97US-0057761
97US-0058785
                                                                                                                                                                                                                                                                                                                                                                                                                                        522.00
5.168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          360 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Fischer CL, Flor
, Li Y, Moore PA,
                                                                                                                                                                                                                                                                                                                                        from: 1 to: 1196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          212 C; 259
                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Carter KC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KC, Duan R, Ebner R, E
Florence KA, Greene JM,
ce PA, Ni J, Olsen HS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         G; 364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Yu GL, Zeng Z;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         T; 1 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                       101
                                 84
                                                                                                   67
                                                                                                                                    283
                                                                                                                                                                  50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               M, Hu JS;
Rosen CA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Endress GA;
```

```
84 LIGHLISSYMALTISCHUMALTYTCHOCHSCHUMALTHICH 100

384 ANGANGTTTANTGANGTTTANTGANGGANCANACGGGGGGTCANTCANCA 433

101 Val 101

434 GT# 435

584_Andanca (SIDSL) GCCGdata/geneseqn/WAl198.DAT:ANV99557

584_Addanca (SIDSL) GCCGGATA/geneseqn/WAl198.DAT:ANV99557

584_Addanca (SIDSL) GCCGGATA/geneseqn/WAl198.DAT:ANV9957

584_Addanca (SIDSL) GCCGGATA/geneseqn/WAl198.DAT:ANV1997

584_Addanca (SIDSL) GCCGGATA/geneseqn/Wal198.DAT:ANV1997

584_Addanca (SIDSL) GCCGGATA/geneseqn/Wal198.DAT:ANV1997

584_Addanca (SIDSL) GCCGGATA/geneseqn/Wal198.DAT-ANV1997

584_Addanca (SIDSL) GCCGGATA/geneseqn/W
```

```
23-MAY-1997

24-AUG-1997

22-AUG-1997

22-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   23-MAY-1997
23-MAY-1997
23-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               23-MAY-1997;
                                   Feng P, Ferrie AM,
Kyaw H, Lafleur DW,
WPI; 1998-506364/43.
P-PSDB; AAW74777.
                                                     Bednarik
                           Ruben SM, Shi Y,
                                                                         (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -MAY-1997;
-MAY-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                970S-0047598.
970S-0047600.
970S-0047601.
970S-0047612.
970S-0047613.
970S-0047615.
970S-0047615.
970S-0047617.
970S-0047618.
970S-0047618.
970S-0047618.
                                                       Brewer LA,
                                                                                                                                                                                                                                                                                                                             970S-0056662
970S-0056664
970S-0056845
970S-0056862
970S-0056862
970S-0056872
970S-0056872
                                                                                                                                                                                                                                                                                                                                                                                             97US-0056632.
97US-0056636.
97US-0056637.
                                                                                                                                                                                                                                                                                                                                                                                                                         97US-0052874.
97US-0055724.
97US-0056630.
97US-0056631.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97US-0048964.
97US-0048974.
97US-0049610.
                                                                                                                                                                                                        97US-0056886.
97US-0056887.
97US-0056888.
97US-0056889.
                                                                                                                                                                                                                                             97US-0056881
97US-0056882
97US-0056884
                                                                                                                                                                                                                                                                                                   97US-0056875.
97US-0056876.
97US-0056877.
                                                                                                             970S-
970S-
970S-
                                                                                            97US-0058785
                           Soppet DR,
                                  r LA, Carter KC, Duan R, Ebner R, E
Fischer CL, Florence KA, Greene JM,
Li Y, Moore PA, Ni J, Olsen HS,
                                                                                                                                                                                                                                                                         -0056880.
                                                                                                                                  -0056911
                                                                                                                                                                                                                                             -0056884.
                                                                                                                                                                                                                                                       -0056882.
                                                                                                                                                                                                  0056892
                          Young PE,
                            Yu GL,
                          Zeng Z;
                                                       Endress GA;
                                     Rosen CA;
```

```
X444XXX0000000000000000XXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               alignment_block:
US-09-484-964-2 x AAV59557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alignment_scores:
                                                                                                                               seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AA235859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This sequence represents a nucleic acid molecule designated Gene 47 from the human cDNA clone HOGAVT5 (deposited as clone ATCC 97899 and ATCC 209045) which encodes a secreted human protein. The gene can be used to generate fusion proteins by linking to the gene to a human compared to the fused protein as compared to the human protein only.

Ct the fused protein as compared to the human protein only.

Ct rie invention relates to 186 novel genes and their fragments (nucleic acid sequences: AAV59511-V59812; amino acid sequences AAW74731-W75026)

Ct which are useful for preventing, treating or ameliorating medical conditions e.g. by protein or gene therapy. Also, pathological conditions can be diagnosed by determining the amount of the new polypeptides in a conjuncted conditions. Specific uses are described for each of the 186 polynucleotides, based on which tissues they are most highly expressed in conditions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Quality: 522.00
Ratio: 5.168
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Align seg 1/1 to: AAV59557
                                                                         _documentation_block:
AAZ35859 standard; cDNA; 1514 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    New isolated human genes and the secreted polypeptide(s) they encode - useful for diagnosis and treatment of e.g. cancers, neurological disorders, immune diseases, inflammation or blood disorders
                                                                                                                                                                      428
                                                                                                                                                                                                                                                                                                                                                                                                       278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 1; Page 279-280; 721pp; English.
 03-FEB-2000
                                                                                                                                                                                                            101
                                                                                                                                                                                                                                                                                                                          328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        178 GGAAGGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 1220 BP; 382 A; 207 C; 258 G; 372
                                                                                                                                                                                                                                                                                                                                                               67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          84
                                                                                                                                                                                                                                                                                                                                                                                                                                         51
                                                                                                                                                                                                                                              TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl
                                                                                                                                                                                                            Val 101
                                                                                                                                                                                                                                                                                                                            GGGTCAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                       TACTGTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA
                                                                                                                                                                      GTT 430
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length: 101
Gaps: 0
Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             to:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        T; 1 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                34
                                                                                                                                                                                                                                                                                                                                                               84
                                                                                                                                                                                                                                                                                                                                                                                                                                               67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            227
                                                                                                                                                                                                                                                                                                                              377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   277
```

Human sentrin nucleotide sequence

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                    alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                    Quality: 522.00
Ratio: 5.168
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                       Align seg 1/1 to: AAZ35859
                                                                                                                                                                                                                                                                                                                                       09-484-964-2 x AAZ35859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The present invention describes an antisense compound (I) 8-30 nucleotides long targeted to a nucleic acid molecule encoding human sentrin. The antisense compound comprises a phosphorothicate antisense oligonucleotide which inhibits expression of human sentrin. (I) is useful for inhibiting expression of sentrin in human cells or tissues in vitro, for treating humans or other animals suspected of having or being prone to a disease associated with sentrin expression. (I) can also be used for research or diagnostic purposes. The present
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human; sentrin; antisens
inhibition; modulation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1514 BP; 462 A; 256 C; 314 G; 482 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Example 13; Column 39-42; 29pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Baker BF,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16-NOV-1999.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US5985664-A
                                                 286
                                                                                                                                                                                                                                          136 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTGGGGGATAAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence encodes human sentrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            treating diseases associated with sentrin expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Antisense compound which modulates human sentrin expression, useful for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           P-PSDB; AAY49967.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (ISIS-) ISIS PHARM INC
                                                                                                                                                                            186 GGAAGGTGAATATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA 235
                  67
                                                                                                                               34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                             17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI
                                                                                                                                                                                                                                                           MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy
uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG
                                                                TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                             TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000-022284/02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cowsert LM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98US-0213768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98US-0213768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                antisense oligonucleotide; phosphorothioate;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product= "sentrin"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 expression; diagnosis;
                                                                                                                                                                                                                                                                                                         from: 1
                                                                                                                                                                                                                                                                                                                                                                                       Percent
                                                                                                                                                                                                                                                                                                         ţ.
                                                                                                                                                                                                                                                                                                                                                                               Gaps: 0
Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
                                                                                                                                                                                                                                                                                                         1514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SS
                                                                                                                                                                                                                                                                                                                                                                                                                  101
                  84
                                                                                                                                                                                                          34
                                                                                                                                                                                                                                          185
                                                 335
                                                                                                             285
                                                                                                                                                                                                                                                                         17
```

```
seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAA16215
                                                  alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _documentation_block:
AAA16215 standard; DNA; 616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Endege WO,
Catino TJ,
                                                                                                                                                                                               differentially expressed in colon cancer cells compared to the expression levels in normal cells. The nucleotide sequence can be used as a source of primers and probes. The nucleotide sequence is useful for determining the phenotype of a cell by detecting the differential expression of the sequence relative to a normal cell. The probes derived from the sequence can also be used to determine the phenotype of cells in a sample. Probes and antibodies which hybridise to the nucleotide sequence can also be used to determine the phenotype of a cell. The primers are useful for detecting a mutation in a test nucleotide sequence and also for detecting
                                                                                                 Sequence 616 BP;
                                                                                                                                                    cancer, preferably colon cancer. Antibodies against the protein encoded by the nucleotide sequence can also be used in a method to detect colon cancer. The diagnostic method is non-invasive and accurate for diagnosing
                                                                                                                                                                                                                                                                                                                                                                                      Claim 16; Page 211-212; 345pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                     Novel nucleic acids and useful for treating and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Colon cancer; detect; differential expression; human; detect mutation; non-invasive diagnostic method; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    386
                                                                                                                                    colon cancer at an early stage.
                                                                                                                                                                                                                                                                                                                                                       This sequence represents a human nucleotide sequence which is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Schlegel R;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (FARB ) BAYER CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31-AUG-1998;
27-JAN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             30-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              09-MAR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200012702-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human colon cancer differentially expressed nucleotide sequence #220.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAA16215;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    336 GGGTCAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGAAGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACA 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTT 438
Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000-256641/22.
                                 Quality:
                 Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Steinmann KE, As
Dwivedi P, Ford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98US-0098639
99US-0117393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99WO-US19424.
503.00
5.030
98.039
                                                                                                   181 A; 109 C; 149 G; 170 T; 7 other;
                                                                                                                                                                                                                                                                                                                                                                                                                    proteins for identifying therapeutic agents diagnosing cancer, especially colon cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Astle JH, Burgess CC, prd DM, Lewis ME, Molii
   Percent Identity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ВP
                                    Length:
                 Gaps:
   97.059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Molino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Carroll E;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Monahan
```

alignment\_block:

US-09-484-964-2 x AAA16215

```
seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA1997.DAT:AAT63339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Align seg 1/1 to: AAA16215
                                                                                                                                          New isolated DNA which encodes viral interacting proteins - used in assays to isolate products for inhibiting viral protein binding which is required for infection, replication, assembly or release
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     377
                                                 cDNA clones (AAT63335-39) comprise partial sequences for human nucleoprotein interactor proteins NPI-2 to NPI-6, respectively. These are host cell proteins which interact with influenza virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        177
                  nucleoprotein (NP) and which may be accessory proteins required for influenza virus replication. NPI-6 was identified as a novel
                                                                                                                                                                                                               WPI; 1997-226211/20.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Host cell protein; NPI-6; nucleoprotein interactor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human host cell protein NPI-6 partial cDNA clone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       127
                                                                                                                                                                                                                                                                            (MOUN ) MOUNT SINAI MEDICAL CENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  influenza virus; replication; antiviral; virucide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGAAGATGTGAAAGTTTATCANGAACAAACCGGGGGTCATTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  luGluAspValIIeGlu.ValTyrGlnGluGlnThrGlyGlyHisSerTh 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTGGGGGGATAAGAA 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGTT 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGGTCAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TACTGTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGA 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGAAGGTGAATATATAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                            Palese P;
                                                                                                               Fig 11; 98pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                         95WO-US13044.
                                                                                                                                                                                                                                                                                                                                       95WO-US13044.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cDNA; 372
      NPI
   sequences were isolated by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  from: 1
                                                                                                               English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ç
O:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  616
   interactive trap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        226
```

```
99999988
                                                                                                                                                                                                                                                                                                                                                                                 seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                         seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA2001.DAT:AAF59399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-484-964-2 x AAT63339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity:
          WPI; 2001-168816/17
                                      O'Neill R, Harty R,
                                                                                                                                                                                                                                                                                           Human host cell protein NPI-6 partial nucleotide sequence SEQ ID NO:11.
                                                                                                                                                                                                                                                                                                                          02-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  selection using LexA-MP as bait and yeast transformed with an HeLa cDNA library. NPI-1 (see also AAT6334) and NPI-2 to NPI-6 cDNAs were cloned and analysed. The clones can be used to produce human NPI proteins for use in identifying cpds. that inhibit viral
                                                                     (MOUN ) MOUNT SINAI SCHOOL MEDICINE
                                                                                                                               11-AUG-2000; 2000WO-US22257
                                                                                                                                                                                         WO200111335-A2
                                                                                                                                                                                                                                                  Identification; antiviral; viral protein; viral replication;
viral infection; nucleoprotein; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 372 BP; 121 A;
                                                                                                                                                            15-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGly 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGTCAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGAAGTTGTGATTGAAGTTTATCAGGAACAAACGGGGGGT 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TACTGTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               to:
                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                  99US-0148263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     492.00
5.125
98.969
                                                                                                                                                                                                                                                nucleoprotein;
                                                                                                                                                                                                                                                                                                                                                                                   DNA; 372 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            72 C; 97 G; 82 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               from:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length: 97
Gaps: 0
Percent Identity: 97.938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               to:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        67
```

```
seq_documentation_block:
ID AAT03735 standard; cD
XX
AC AAT03735;
XX
DT 26-MAR-1996 (first e
XX
DT 27NF-R p55IC/Fas-IC-bi
XX
KW Tumour necrosis facto
                                                                                                                                                                                                        seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA1996.DAT:AAT03735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  alignment_block:
US-09-484-964-2 x AAF59399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Align seg 1/1 to: AAF59399 from: 1 to: 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Tumour necrosis factor receptor; TNF-R; p55IC; Fas-IC;
                                     TNF-R p55IC/Fas-IC-binding protein DD11 cDNA clone
                                                                                                                                                      AAT03735 standard; cDNA; 425 BP
                                                                                                                                                                                                                                                                                                                       280 GGGTCAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180 TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   130 GGAAGGTGAATATATAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 372 BP; 121 A; 72 C; 97 G; 82 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                compositions comprising a polypeptide containing an amino acid sequence corresponding to the NP-NLS domain of the influenza virus NP protein, which inhibits the specific interaction of the NPI-1 protein with the influenza virus NP protein are useful for treating or inhibiting influenza viral infection in humans. The present sequence represents a human host cell protein NPI-6 partial nucleotide sequence, which is used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        indicated by a decrease in complex formation. The antiviral compounds that inhibit the interaction between a host protein (NSI-BP or NPI-1) and a viral protein (NSI) are useful for treating or inhibiting viral infection, preferably influence and rabbdovirus infection, in humans. Antiviral compounds include peptides and antibodies. In particular
                                                                                                                                                                                                                                                                  84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGly 97
                                                                                                                                                                                                                                                                                                                                                                                                                                  51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheG1 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         substance that inhibits the interaction of a viral protein (VP) with a host cell protein (HP). The method comprises: (a) contacting HP with VP in the presence of a test substance; and (b) detecting complex formation, where the ability of the test substance to inhibit HP/VP interaction is
                                                                                                                                                                                                                                                                                                                                                                     67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Identifying a substance that inhibits the interaction between a viral protein and a host cell protein, useful for the discovery of new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The present invention describes a method (M1) for identifying a substance that inhibits the interaction of a viral protein (VP) with a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Disclosure; Fig 11; 147pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                antiviral compounds -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                           uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
                                                                                                                                                                                                                                                                                                                                                                                                 TACTGTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGA
                                                                                                                                                                                                                                                  AAGAAGTTGTGATTGAAGTTTATCAGGAACAAACGGGGGGT 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTGGGGGGATAAGAA 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ratio:
                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      492.00
5.125
98.969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length: 97
Gaps: 0
Percent Identity: 97.938
                                                                                                                                                                                                                                                                                                                                                                                                   279
```

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      alignment_scores
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-484-964-2 x AAT03735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Align seg 1/1 to: AAT03735
                                  368 AAGAAAGATTGTGATTTGAAGTTTTATCAGGAACAAACGGGGGGTCATTC
                                                                                                                                                                                                                   268 ATACTGTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              168 AGGAAGGTGAATATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cDNA clone DD11 (AAT03735) was isolated by screening a human HeLa library using the human tumour necrosis factor receptor (TNF-R) p55 death domain (p55DD) as 'bait'. The full length of the DD11 interacts strongly with p55DD (amino acids 326-414) and also with human and mouse-FAS intracellular domain. Such proteins may be used modulate TNF-R function.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TNF-NGF receptor superfamily intracellular domain-binding proteins useful for modulating receptor function, e.g. for treating tumours or HIV-infected cells
99 rThr 100
                                                                           84 GluGluAspVal...IleGluValTyrGlnGluGlnThrGlyGlyHisSe 99
                                                                                                                                                                                   67
                                                                                                                                                                                                                                                                           50
                                                                                                                                                                                                                                                                                                                                        34 IleHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 425 BP; 135 A; 80 C; 115 G; 95 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 18; Fig 12; 96pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                  17 ysGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1996-010930/01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Boldin M, Mett I, Varfolomeev E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11-MAY-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11-MAY-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               23-NOV-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO9531544-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (YEDA ) YEDA RES & DEV CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (WEIN/) WEINWURZEL H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02-OCT-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                intracellular domain binding protein; ss
                                                                                                                                                                                                                                                     rTyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheG
                                                                                                                                                 luGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGlu
                                                                                                                           AGGGTCAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAG
                                                                                                                                                                                                                                                                                                               ATTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           94IL-0111125.
94IL-0109632.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95WO-US05854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96.078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                470.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4.801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                from: 1 to: 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Identity: 91.176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Wallach
                                                                                                                                                                                                                        317
                                                                                                                                                                                                                                                                    67
                                                                                                                                                                                                                                                                                                               267
                                                                                                                                                                                                                                                                                                                                                                                                                                                       33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      167
```

418 AACA 421

```
seq_documentation_block:
ID AAA43182 standard; cDNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq_name: /SIDS1/gcgdata/geneseq/geneseqn/Na2000.DAT:AAA43182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human; mouse; xenopus; rat; secreted expressed sequence tag; SEST; expressed sequence tag; EST; probe; chemotactic; proliferative; immunomodulatory; haematopoietic; chemokinetic; analgesic; haemostatic; thrombolytic; antiinflammatory; cytostatic; antibacterial; antifungal; antiviral; antiinflammatory; cytostatic; antibacterial; antifungal; antiviral; antionatoric; neuroprotective; nootropic; antiparkinsonian; antiulcer; osteopathic; neuroprotective; nootropic; antiparkinsonian; cerebroprotective; anticonvulsant; antidepressant; gene therapy; vaccine; autoimmune disorder; multiple sclerosis; allergic condition; insulin dependent diabetes; asthma; myeloid cell deficiency; ulcer; lymphoid cell deficiency; burn; osteoporosis; osteoarthritis; central nervous system disorder; Alzheimer's disease; stroke; Parkinson's disease; Huntington's disease; coagulation disorder; haemophilia; thrombosis; inflammatory disorder; Crohn's disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Xenopus secreted expressed sequence tag SEQ ID NO:1922.
therapy and in vaccines. The sESTs are useful as probes for the identification and isolation of full-length cDNAs and genomic DNA molecules which correspond to the sESTs. Proteins encoded by the SESTs are useful in assays for determining biological activity and raising antibodics. They may be useful for treatment of autoimmune disorders (multiple sclerosis, insulin dependent diabetes), allergic conditions (asthma), myeloid or lymphoid cell deficiencies, wounds, burns, ulcers, osteoporosis, osteoparthritis, central nervous system disorders (Alzheimer's, Parkinson's, Huntington's disease, stroke), coagulation disorders (haemophilia, thrombosis), inflammatory disorders (croin's disease), tumours, bacterial, fungal or viral infections, depression and psoriasis. AAAA3420 to AAAA3425 represent linker variants which are given
                                                                                                                                                                                                                                                                                                                                                          sequence tags (SESTs), isolated from human, mouse, xenopus and rat tissue sources. The SESTs can have a range of activities depending on the tissues they were isolated from. The activities include: chemotactic; proliferative; immunomodulatory; haematopoietic; chemokinetic; analgesic; haemostatic; thrombolytic; antiinflammatory; cytostatic; antibacterial; antifungal; antiviral; antidiabetic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Isolated polynucleotides, and encoded proteins, comprising secreted expressed sequence tags (sESTs), useful for treating various disorders such as autoimmune, infectious, and central nervous system disorders -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200021990-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Xenopus sp.
                                                                                                                                                                                                                                                                                          antiasthmatic; vulnerary; antiulcer; osteopathic; neuroprotective; nootropic; antiparkinsonian; antipsoriatic; cerebroprotective; anticonvulsant; and antidepressant. The sESTs can be used for gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15-OCT-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20-APR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tumour; infection; depression; psoriasis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAA41261 to AAA43419 represent specifically claimed secreted expressed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Claim 1; Page 559; 618pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2000-317937/27.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Merberg D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Jacobs K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GEMY ) GENETICS INST INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      мсСоу ЈМ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Treacy M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98US-0104435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99WO-US24205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LaVallie ER,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     335 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Collins-Racie LA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Evans
```

```
alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        alignment_block:
seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAC34206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Align seg 1/1 to: AAA43182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-484-964-2 x AAA43182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 335 BP; 117 A; 61 C; 86 G; 71 T; 0 other;
                                      23-MAR-1999;
25-MAR-1999;
29-MAR-1999;
01-APR-1999;
06-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   in the exemplification of the present invention.
                                                                                                            25-FEB-1999;
05-MAR-1999;
09-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  133 AAATTCACTTCAAGGTAGAGATGACAACGCATCTCAAAAAGCTGAAAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   233 TGAAGGGCAAAGAATCTCAGATCACCAGACTCCTAAGGAGCTCGGAATGG
                                                                                                                                                                                                                                                         Arabidopsis thaliana
                                                                                                                                                                                                                                                                                    metabolic pathway; promoter; termination sequence; ss
                                                                                                                                                                                                                                                                                                   Hybridisation assay; genetic mapping; gene expression control; protein identification; signal transduction pathway;
                                                                                                                                                                                                                                                                                                                                              Arabidopsis thaliana DNA fragment SEQ ID NO: 5835.
                                                                                                                                                                                                                                                                                                                                                                             17-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                    AAC34206 standard; DNA; 710 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  33 lulleHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGlu 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17 sGln...GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerG 33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   33 ATGTCTGATCAGGAAGCGAAACCATCTAGCGAGGATCTAGGAGACAAAAA 82
          08-APR-1999;
16-APR-1999;
                                                                                                                                                                        25-FEB-2000;
                                                                                                                                                                                                     06-SEP-2000
                                                                                                                                                                                                                                EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    83 luGluGluAspValIleGluValTyrGlnGluGlnThrGlyGly 97
19-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCATACTGTCAGAGACAGGGCGTTCCAATGAATTCTCTCAGGTTTTTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerTyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGGAAGAGGATGTTATTGAAGTTTATCAGGAACAGACTGTGGGT 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             eGluGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ratio:
                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                         2000EP-0301439
             99US-0128234.
99US-0128714.
99US-0129845.
                                                                                                99US-0125788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    452.50
4.714
97.959
99US-0130077
                                                          99US-0127462.
                                                                      99US-0126785.
                                                                                     99US-0126264
                                                                                                               99US-0123548.
                                                                                                                                            99US-0121825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Identity: 90.816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 to: 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        182
```

19- 19-																~	~	20 2	0 7	70	₩	<b>*</b>	70	77	20 2	0 20	~	~ .	~ ~	~	~	~ ~	~	~ .	~ ~	~	~ .	~ ~		λ.		• ,-								
JUL-1999; JUL-1999; JUL-1999;	19-JUL-1999; 19-JUL-1999; 19-JUL-1999:	16-JUL-1999; 16-JUL-1999;	14-JUL-1999; 15-JUL-1999;	12-JUL-1999;	08-JUL-1999;	02-JUL-1999; 06-JUL-1999;	01-JUL-1999;	30-JUN-1999;	29-JUN-1999;	24-JUN-1999;	23-JUN-1999;	22-JUN-1999;	21-JUN-1999;	18-JUN-1999;	18-JUN-1999;	18-JUN-1999;	18-JUN-1999;	18-JUN-1999;	18-JUN-1999;	18-JUN-1999;	18-JUN-1999;	18-JUN-1999;	17-JUN-1999;	16-JUN-1999;	16-JUN-1999;	10-JUN-1999;	10-JUN-1999;	08-JUN-1999;	07-JUN-1999;	03-JUN-1999;	01-JUN-1999;	28-MAY-1999;	25-MAY-1999;	24-MAY-1999;	21-MAY-1999;	19-MAY-1999;	18-MAY-1999;	14-MAY-1999;	14-MAY-1999;	14-MAY-1999;	11-MAY-1999;	06-MAY-1999;	06-MAY-1999;	05-MAY-1999;	04-MAY-1999;	30-APR-1999;	30-APR-1999;	23-APR-1999;	23-APR-1999;	21-APR-1999;
99US-0144333. 99US-0144334. 99US-0144335.	99US-0144325. 99US-0144331. 99US-0144331	99US-0144085. 99US-0144086.	99US-0143624. 99US-0144005.	99US-0142977.	99US-0142803.	99US-0142055. 99US-0142390.	99US-0142154.	99US-0141287.	99US-0140991.	99US-0140695.	9908-0140354.	9905-0139899. 9905-0140353	9905-0139817.	99US-0139763.	99US-0139463. 99US-0139750.	99US-0139462.	99US-0139461.	99US-0139460.	99US-U139458.	99US-0139457.	99US-0139456.	99US-0139454.	99US-0139492.	99US-0139453.	99US-0139452.	99US-0138847.	99US-0138540.	99US-0138094.	9905-0137502.	99US-0137528.	9905-0137222.	9905-0136392.	99US-0136021.	99US-0135629.	9905-0135124.	9908-0134941.	99US-0134768.	99US-0134221. 99US-0134370	99US-0134219.	99US-0134218.	99US-0134256.	99US-0132487.	99US-0132486.	99US-0132485.	9905-0132484.	99US-0132407.	9905-0131449.	99US-0130891.	99US-0130510.	99US-0130449.
									-		<del></del>	T 15		<b>T</b>			T .	<b></b>	n 'r			77.71	1 711		יים אי	ni tri	rd.	ra ·		1 41	-TI				ים יו	ם יו	ים,			ָם י	ים יים	ים ים	סף נ	פי	פי	יסי	יים די	םי כ	ם י	<b>-</b>
PR 13-0CT 1999; PR 14-0CT-1999; PR 14-0CT-1999;	R 12-OCT-1999 R 13-OCT-1999 R 13-OCT-1999	R 07-OCT-1999 R 08-OCT-1999	R 05-0CT-1999 R 06-0CT-1999	R 29-SEP-1999	R 24-SEP-1999 R 28-SEP-1999	R 22-SEP-1999 R 23-SEP-1999	R 20-SEP-1999	R 15-SEP-199	R 13-SEP-199	R 07-SEP-199	R 01-SEP-199	R 30-AUG-199	R 27-AUG-199	R 27-AUG-199	R 27-AUG-199	R 25-AUG-199	23-AUG-199	23-AUG-199	20-AUG-199	20-AUG-199	18-AUG-199	17-AUG-199	13-AUG-199	13-AUG-199	12-AUG-199	10-AUG-199	09-AUG-199	09-AUG-199	06-AUG-199	05-AUG-199	05-AUG-199	04-AUG-199	03-AUG-199	02-AUG-199	02-AUG-199	28-JUL-199	27-JUL-199	27 - JUL - 199 27 - JUL - 199	26-JUL-1999	23-JUL-1999	23-JUL-1999	991-1UL-199	22-JUL-1999	22-JUL-1999	22-ЈИГ-1999	R 21-JUL-1999	R 21-JUL-1999	R 20-JUL-1999	R 20-JUL-1999	R 20-JUL-1999
R 13-OCT-1999 R 14-OCT-1999 R 14-OCT-1999	R 12-OCT-1999; 99US-01583( R 13-OCT-1999; 99US-01592( R 13-OCT-1999; 99US-01592(	R 07-OCT-1999; 99US-01580; R 08-OCT-1999; 99US-01582;	R 05-0CT-1999; 99US-01577:	R 29-SEP-1999; 99US-015659	R 24-SEP-1999; 99US-01556: R 28-SEP-1999; 99US-01564:	R 22-SEP-1999; 99US-01551; R 23-SEP-1999; 99US-01554	R 20-SEP-1999; 99US-01547	R 15-SEP-1999; 99US-01540;	R 13-SEP-1999; 99US-01537	R 07-SEP-1999; 99US-015236	R 01-SEP-1999; 99US-01519	R 30-AUG-1999; 99US-01514;	R 27-AUG-1999; 99US-015108	R 27-AUG-1999; 99US-015106	R 27-AUG-1999; 99US-015106	R 25-AUG-1999; 99US-015056	23-AUG-1999; 99US-01499;	23-AUG-1999; 99US-01499(	20-AUG-1999; 99US-0149/2	20-AUG-1999; 99US-01497;	18-AUG-1999; 99US-014942	17-AUG-1999; 99US-014917	13-AUG-1999; 99US-014868	13-AUG-1999; 99US-014856	12-AUG-1999; 99US-014834	10-AUG-1999; 99US-01481/	09-AUG-1999; 99US-01479:	09-AUG-1999; 99US-014749	06-AUG-1999; 99US-01474]	05-AUG-1999; 99US-014726	05-AUG-1999; 99US-014719	04-AUG-1999; 99US-01473(	03-AUG-1999; 99US-014703	02-AUG-1999; 99US-014638	02-AUG-1999; 99US-014638	28-JUL-1999; 99US-014595	27-JUL-1999; 99US-014591	27-JUL-1999; 99US-014591 27-JUL-1999; 99US-014591	26-JUL-1999; 99US-014527	23-JUL-1999; 99US-014522	23-JUL-1999; 99US-014521	22-JUL-1999; 99US-014514	22-JUL-1999; 99US-014508	22-JUL-1999; 99US-014508	22-JUL-1999; 99US-014508	R 21-JUL-1999; 99US-014508	R 21-JUL-1999; 99US-014508	R 20-30L-1999; 9905-014466	R 20-JUL-1999; 99US-014463	R 20-JUL-1999; 99US-014435

```
seq_documentation_block:
                                                                                                                                                                                            seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAA31493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Align seg 1/1 to: AAC34206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-484-964-2 x AAC34206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-OCT 1999
21-OCT 1999
21-OCT 1999
21-OCT 1999
21-OCT 1999
21-OCT 1999
22-OCT 1999
22-OCT 1999
22-OCT 1999
25-OCT 1999
25-OCT 1999
25-OCT 1999
26-OCT 1999
     Plant microsatellite sequence; core repeat sequence; detection; probe; DNA polymorphism; genome mapping; physical mapping; fingerprinting; variety identification; genetic variability evaluation; primer; ss.
                                                                    Plant microsatellite marker #454.
                                                                                                05-JUL-2<del>00</del>0
                                                                                                                                                   AAA31493 standard; DNA; 397 BP
                                                                                                                                                                                                                          410
                                                                                                                                                                                                                                                                               360 TGAGCTTGACATGGAGGATGGTGATGAGATCGATGCGATGCTCCATCAGA 409
                                                                                                                                                                                                                                                                                                                                        310
                                                                                                                                                                                                                                                                                                                                                                                               260
                                                                                                                                                                                                                                                                                                                                                                                                                                                     210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          160 GACAAGAAGCCAGGAGACGGAGGAGCTCACATCAATCTCAAAGTCAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-OCT-1999;
                                                                                                                                                                                                                                                     95 hrGlyGly 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28 yGlnAspSerSerGluIleHisPheLysValLysMetThrThrHisLeuL 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15 AspLysLysGlnGlyGlu......TyrIleLysLeuLysValIleGl
                                                                                                                                                                                                                         CTGGTGGC 417
                                                                                                                                                                                                                                                                                                        sGluLeuGlyMetGluGluAspValIleGluValTyrGlnGluGlnT 95
                                                                                                                                                                                                                                                                                                                                    ATTGCTTTCTTGATGGGCGTCGTCCTTCGTGCTGAGCAAACTCCCGA 359
                                                                                                                                                                                                                                                                                                                                                              LeuArgPheLeuPheGluGlyGlnArgIleAlaAspAsnHisThrProLy 78
                                                                                                                                                                                                                                                                                                                                                                                            AGAAGCTGATGAATGCTTACTGTGACCGGCAATCTGTGGACATGAACTCC
                                                                                                                                                                                                                                                                                                                                                                                                                       ysLysLeuLysGluSerTyrCysGlnArgGlnGlyValProMetAsnSer 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACAGGATGGAAACGAGGTTTTCTTTAGGATCAAGAGAAGCACTCAGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Quality:
Ratio:
                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0161361.
99US-0161920.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99US-0161359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99US-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99US-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99US-0160768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0160815.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0160767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99US-0160741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9905-0159584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  223.50
3.287
79.070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -0160770.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -0161360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0161405.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -0160989.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0161404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0160980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0160814.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Identity: 51.163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                to: 710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   186
```

```
alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Align seg 1/1 to: AAA31493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-484-964-2 x AAA31493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequences AAA31040-A32093 represent novel plant microsatellite sequences and associated flanking species. The sequences comprise a central core repeat sequence, especially selected from the sequences AAA32094-A32096 with left and right flanking sequences. The polynucleotide sequences can be used in the detection of DNA polymorphisms, in genome mapping, in physical mapping, in positional cloning of genes, in variety identification and in evaluation of genetic variability within and between plant tissues, populations, cultivars, species and species groups. They may also be used to design hybridization probes for oligonucleotide fingerprinting and library screening and to design primers for microsatellite-primed PCR. Microsatellite markers are useful to locate specific economically useful genes in plant genomes.
354 ATGCGATGTTGCACCAGACTGGCGGA 379
                                                                                                                                                                                                                                               204
                                                                                                                                                                                                                                                                                                                                 154 CAACCTCAAGGTCAAGGGTCAGGATGGGAATGAAGTCTTTTTAGGATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 397 BP;
                                                                                                                                                                                                                                                                                                                                                                                                              104 CCCAGCAGCACGAGAGAAGACAAGAAGCCGAACGATCAGTCCGCCCACAT 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 1; Page 210; 392pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Havukkala IJ, Bloksberg LN, Glenn M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GENE-) GENESIS RES & DEV CORP LTD & FLETCHER. (FLET-) FLETCHER CHALLENGE FORESTS LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    25-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            W09967421-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eucalyptus grandis.
                                                                                                                                                                                                                                                                                        39
                                                                                                                                                                                                                                                                                                                                                      22 eLysLeuLysVallleGlyGlnAspSerSerGluIleHisPheLysValL 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                  8 ProSerThr.....GluAspLeuGlyAspLysLysGlnGlyGluTyrIl 22
                                                                                                                                                                                   GlyValProMetAsnSerLeuArgPheLeuPheGluGlyGlnArgIleAl 72 :::||| ||||||||||:::|||:::|||:::||
                                      luValTyrGlnGluGlnThrGlyGly 97
                                                                                                    TCCGTGGAAATGAACTCGATTGCATTCTTTGATGGCCGCCGTCTGCG
                                                                                                                                                                                                                                               AAAGGAGCACTCAGCTGAAGAAGCTCATGAATGCCTATTGTGATAGGCAG
                                                                                 AGGTGACCAGACTCCTGATGAGCTAGAGATGGAGGATGGAGACGAGATCG
                                                                                                                                                                                                                                                                       ysMetThrThrHisLeuLysLysLeuLysGluSerTyrCysGlnArgGln
|| :::|||:::||||||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        detection of polymorphic genetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              plant microsatellite markers and associated flanking species
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2000-116958/10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Quality:
Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98US-0105307.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99WO-NZ00092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                223.00
3.141
77.174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            113 A; 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Identity: 48.913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ç;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          122 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               to:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            75 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            markers
                                                                                                                                                                                                                                                                                        55
                                                                                                                                                                                                                                               253
```

. א א א א א א א א א א א א א א א א א א א	Seq_C
metabolic path metabolic path metabolic path Arabidopsis th EP1033405-A2.  06-SEP-2000. 25-FEB-1999 05-MAR-1999 05-MAR-1999 25-MAR-1999 23-MAR-1999 01-APR-1999 11-APR-1999 11-APR-1999 23-APR-1999 23-APR-1999 11-APR-1999 11-APR-1999 11-APR-1999 11-APR-1999 11-APR-1999 11-APR-1999 11-APR-1999 11-APR-1999 11-APR-1999 11-MAY-1999 11-JUN-1999	seq_documentation_block: ID
fication; signal transduction pathwa way; promoter; termination sequence; aliana.  000ep-0301439.  99US-0123180. 99US-0125788. 99US-0125784. 99US-0126785. 99US-0126785. 99US-0130077. 99US-0130449. 99US-0130449. 99US-0130449. 99US-0132486. 99US-0132486. 99US-0132487. 99US-0132487. 99US-0134218. 99US-0134218. 99US-0134219. 99US-013421. 99US-013425. 99US-013425. 99US-013425. 99US-013945. 99US-013945.	DNA; ent; a DN/ a DN/
קים הים הים הים הים הים הים הים הים הים ה	א ק ק ק ק ק ק ק ק ק ק ק ק ק ק ק ק ק ק ק
28-JUN-1999 28-JUN-1999 30-JUN-1999 31-JUN-1999 30-JUN-1999 30-JUL-1999 30-JUL-1999 30-JUL-1999 31-JUL-1999 31-JUL	JUN
990S - 0140823 990S - 0140823 990S - 0140991 990S - 0141287 990S - 0142803 990S - 0143542 990S - 0144332 990S - 0144332 990S - 0144333 990S - 0144334 990S - 0144334 990S - 0145086 990S - 0145086 990S - 0145086 990S - 0145182 990S - 0145182 990S - 0145183 990S - 0145218 990S - 0145218 990S - 014538 990S - 0145218 990S - 0147303 990S - 0147303 990S - 0147303 990S - 0147303 990S - 0147313 990S - 0147313 990S - 0147313 990S - 0147313 990S - 0147338 990S - 0148341 990S - 0148341 990S - 0149368 990S - 0149322 990S - 0149722 990S - 0149722	US-013: US-013: US-013: US-013: US-013: US-013: US-013: US-013: US-014: US-014:

```
PR 21.400.1999; 99US 0144929.
PR 21.400.1999; 99US 0144920.
PR 27.400.1999; 99US 0145920.
PR 27.400.1999; 99US 0155066.
PR 27.400.1999; 99US 01550788.
PR 27.40
```

```
seq_documentation_block:
ID AAC48770 standard; DNA; 639 BP.
XX
AC AAC48770;
XX
DT 18-OCT-2000 (first entry)
XX

Arabidopsis thaliana DNA fragment
XX
Hybridisation assay; genetic mapp
KW Hybridisation assay; genetic mapp
KW protein identification; signal tr
KW metabolic pathway; promoter; term
XX

PN EP1033405-A2.
XX

PN EP1033405-A2.

XX

PN EP1033405-A2.

XX

PN EP103405-A2.

XX

PN C5-MAR-1999; 99US-0123480.
PR 05-MAR-1999; 99US-0125788.
PR 05-MAR-1999; 99US-0126785.
PR 05-MAR-1999; 99US-0126784.
PR 16-APR-1999; 99US-0126785.
PR 23-MAR-1999; 99US-0126784.
PR 16-APR-1999; 99US-0126784.
PR 16-APR-1999; 99US-0130047.
PR 23-APR-1999; 99US-0130449.
PR 23-APR-1999; 99US-0132486.
PR 06-MAY-1999; 99US-0132486.
PR 06-MAY-1999; 99US-0132487.
PR 06-MAY-1999; 99US-0134218.
PR 11-MAY-1999; 99US-0134271.
PR 11-MAY-1999; 99US-013553.
PR 11-MAY-1999; 99US-013553.
PR 11-MAY-1999; 99US-013553.
PR 11-MAY-1999; 99US-013553.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq_name:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hybridisation assay; genetic mapping; gene expression control; protein identification; signal transduction pathway; metabolic pathway; promoter; termination sequence; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  37 ysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrCysGln
:::::||| :::|||:::|||||||||||
248 GGATCAAGAGAAGCACTCAGCTCAAAAAACTGATGAATGCTTACTGTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Arabidopsis thaliana DNA fragment SEQ ID NO: 58702.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       398 AGATCGATGCAATGCTTCATCAGACTGGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          348 TCTTCGTGCCGAGCAGCTCCAGATGAGCTTGAAATGGAAGATGGAGATG 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   198 TCACATCAATCTCAAAGTCAAGGGACAGGATGGTAATGAAGTCTTCTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    alileGluValTyrGlnGluGlnThrGlyGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAC48770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  297
```

קי קיק אקיק אקיק	PR R R R	PR PR	PR PR PR	PR	PR	PR	PR	PR	PR	PR	PR	PR	2 P. F.	PR	PR	B B S	PR	PR	PR	PR	PR	PR	PR	PR	PR	PR	PR	PR PR	
7-JUL-1999; 7-JUL-1999; 7-JUL-1999; 2-AUG-1999; 2-AUG-1999; 2-AUG-1999;		2-JUL-1999; 2-JUL-1999; 2-JUL-1999; 2-JUL-1999; 2-JUL-1999;	0-JUL-1999; 1-JUL-1999; 1-JUL-1999; 1-JUL-1999;	9-JUL-1999; 0-JUL-1999; 0-JUL-1999;	1999;	1999;	JUL-1999; JUL-1999; JUL-1999;	3-JUL-1999;	1999;	1-JUL-1999; 2-JUL-1999; 6-JUL-1999:	1999;	1,6661	1999;	1999;	1999;	1999;	1999;	1999;	1999;	1999;	-JUN-1999;	999;	999;	,666	.999;	4-JUN-1999; 7-JUN-1999;	-JUN-1999; -JUN-1999;		
9905-0145918 9905-0145919 9905-0145951 9905-0146386 9905-0146388 9905-0146389	99US-0145145. 99US-0145218. 99US-0145224. 99US-0145226.	990S-0145085. 990S-0145087. 990S-0145089. 990S-0145192.	99US-0144884. 99US-0144814. 99US-0145086. 99US-0145088	990S-0144334. 990S-0144335. 990S-0144352. 990S-0144632	99US-0144331. 99US-0144332. 99US-0144333.	99US-0144086. 99US-0144325.	99US-0143624. 99US-0144005.	990S-0142977. 990S-0142977. 990S-0143542.	99US-0142803.	9905-0142154. 9905-0142055. 9905-0142390	9905-0141287. 9905-0141842.	9908-0140823. 9908-0140991.	99US-0140354. 99US-0140695.	99US-0139899. 99US-0140353.	990S-0139763. 990S-0139817.	99US-0139463. 99US-0139750.	99US-0139461. 99US-0139462.	99US-0139459. 99US-0139460.	99US-0139457. 99US-0139458.	99US-0139455.	99US-0139454.	99US-0139453. 99US-0139492	99US-0139119. 99US-0139452.	99US-0138847.	9905-0138094.	99US-0137502.	99US-0137222. 99US-0137528	99US-0136021. 99US-0136392. 99US-0136782.	
												_						•								_			
Р	PR PR R R	PR PR PR	PR PR PR	PR PR	PR PR	PR PR	PR	PR	PR PR	PR	PR	PR	PR ?	אק	אק אק	PR	קר קר	PR	PR	PR	PR	PR	PR	PR	PR	PR	PR	PR	
25-OCT-1999; 25-OCT-1999; 26-OCT-1999; 26-OCT-1999; 26-OCT-1999; 28-OCT-1999; 28-OCT-1999;	1-0CT- 2-0CT- 2-0CT- 2-0CT-	1-0CT- 1-0CT- 1-0CT-	4-0CT- 4-0CT- 8-0CT- 1-0CT-	14-OCT-1999; 14-OCT-1999; 14-OCT-1999;	13-OCT-1999; 13-OCT-1999; 13-OCT-1999;	07-OCT-1999; 08-OCT-1999; 12-OCT-1999;	04-0CT-1999; 05-0CT-1999; 06-0CT-1999;	28-SEP-1999; 29-SEP-1999;	23-SEP-1999; 24-SEP-1999;	20-SEP-1999; 22-SEP-1999;	15-SEP-1999; 16-SEP-1999;	10-SEP-1999; 13-SEP-1999;	999	666	6667 6667	-1999	23-AUG-1999; 23-AUG-1999; 25-AUG-1999;	1999	-1999 -1999	AUG-1999	AUG-1999 AUG-1999	AUG-1999	AUG-1999	AUG	AUG:	AUG-	AUG	03-AUG-1999; 04-AUG-1999;	
99US-0161405. 99US-0161406. 99US-0161359. 99US-0161360. 99US-0161361. 99US-0161320. 99US-0161920.	01608 01609 01609 01609	01607 01607 01607 01608	01596 01596 01595 01607	01593 01593 01593	01592 01592 01592	01580 01582 01583	01571 01577 01578	01564 01565	01554 $01556$	01547	01540	01530	01519	01513	01510	01508	01499	01499	01497	01491	·01486	01485	01483	01479	-01474 -01474	0147	0147	0147	

```
alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PR
PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            alignment_block:
PS PTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      seq_documentation_block:
ID AAA31186 standard; DNA; 351 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAA31186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Align seg 1/1 to: AAC48770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-484-964-2 x AAC48770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  222 GGATGGTAATGAAGTCTTCTTTAGGATCAAGAGAAGCACTCAGCTCAAAA 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28-OCT-1999;
29-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               172 GACAAGAAGCCTGACCAAGGAGCTCACATCAATCTCAAAGTCAAGGGACA 221
                                                                                                                                                                                                                                                                                                                                           plant microsatellite sequence; core repeat sequence; detection; probe; DNA polymorphism; genome mapping; physical mapping; fingerprinting; variety identification; genetic variability evaluation; primer; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   422 GTGGT 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       272 AACTGATGAATGCTTACTGTGACCGTCAGTCTGTGGATTTCAACTCAATT 321
                                                                                                                                       (GENE-) GENESIS RES & DEV CORP LTD & FLETCHER. (FLET-) FLETCHER CHALLENGE FORESTS LTD.
                                                                                                                                                                                        25-JUN-1998;
                                                                                                                                                                                                                      25-JUN-1999;
                                                                                                                                                                                                                                                   29-DEC-1999
                                                                                                                                                                                                                                                                                   WO9967421-A1.
                                                                                                                                                                                                                                                                                                               Eucalyptus grandis.
                                                                                                                                                                                                                                                                                                                                                                                                           Plant microsatellite marker #147.
                                                                                                                                                                                                                                                                                                                                                                                                                                          05-JUL-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15 AspLysLys......GlnGlyGluTyrIleLysLeuLysValIleGlyGl 29
Claim 1; Page 119; 392pp; English.
                          New plant microsatellite markers and the detection of polymorphic genetic
                                                                             WPI; 2000-116958/10.
                                                                                                           HavukkalasIJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         79 uLeuGlyMetGluGluAspValIleGluValTyrGlnGluGlnThrG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29 nAspSerSerGluIleHisPheLysValLysMetThrThrHisLeuLysL 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96 lyGly 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ysLeuLysGluSerTyrCysGlnArgGlnGlyValProMetAsnSerLeu 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTTGAAATGGAAGATGGAGATGAGATCGATGCATGCTTCATCAGACTG 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTTTCTTGTTTGATGGTCGTCGTCTTCGTGCCGAGCAGCTCCAGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgPheLeuPheGluGlyGlnArgIleAlaAspAsnHisThrProLysGl 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Quality:
Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0161993.
99US-0162142.
                                                                                                           Bloksberg LN,
                                                                                                                                                                                        98US-0105307.
                                                                                                                                                                                                                      99WO-NZ00092.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          221.00
3.250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           80.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               from: 1 to:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            percent Identity: 51.765
                                                                                                            Glenn M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 639
                                markers -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               371
```

```
alignment_block:
US-09-484-964-2 x AAA31186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       alignment_scores:
PFF XXX
                                                                                                                                                                                                                                                                                                                                                                                        seq_documentation_block:
ID AAC46716 standard; DNA; 505 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAC46716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Align seg 1/1 to: AAA31186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequences AAA31040-A32093 represent novel plant microsatellite sequences and associated flanking species. The sequences comprise a central core repeat sequence, especially selected from the sequences AAA32094-A32096 with left and right flanking sequences. The polynucleotide sequences can be used in the detection of DNA polymorphisms, in genome mapping, in physical mapping, in positional cloning of genes, in variety identification and in evaluation of genetic variability within and between plant tissues, populations, cultivars, species and species groups. They may also be used to design hybridization probes for oligonucleotide fingerprinting and library screening and to design primers for microsatellite-primed PCR. Microsatellite markers are useful to locate specific economically useful genes in plant genomes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 351 BP; 97 A; 69 C; 112 G; 73 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         128 CCAGGATGGTAATGAGGTCTTTTTTAGGATCAAACGAAGCACCCAGTTGA 177
                                                                                                                                                                  Hybridisation assay; genetic mapping; gene expression control; protein identification; signal transduction pathway; metabolic; pathway; promoter; termination sequence; corn; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 278 TGAGCTCGAGATGGAGGATGGTGATGAAATCGACGCAATGCTCCACCAAA 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         228
                                        06-SEP-2000.
                                                                                                                                                                                                                                                        zea mays DNA fragment SEQ ID NO: 51143.
                                                                                                                                                                                                                                                                                                     18-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              45 ysLysLeuLysGluSerTyrCysGlnArgGlnGlyValProMetAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          78 GACAAGAAGCCCGGCGATCAGGCCGCCCACATCAATCTGAAAGTCAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15 AspLysLysGlnGlyGlu.......TyrIleLysLeuLysValIleGl 28
                                                                                     EP1033405-A2
                                                                                                                              Zea mays subsp. mays.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28 yGlnAspSerSerGluIleHisPheLysValLysMetThrThrHisLeuL 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62 LeuArgPheLeuPheGluGlyGlnArgIleAlaAspAsnHisThrProLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGGGGGATAC 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hrGlyGlyHis 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sGluLeuGlyMetGluGluGluAspValIleGluValTyrGlnGluGlnT 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HITTGCTTTCTTATTTGATGGGCGTAGACTTCGTGGTGAGCAGACTCCTGA 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGAAACTCATGACCGCGTACTGCGATAGGCAATCTGTGGAGTTAAACTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ratio:
                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        218.50
3.213
78.161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Identity: 48.276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  to: 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
```

25-FEB-2000; 2000EP-0301439.

23 - APR - 1999 23 - APR - 1999 28 - APR - 1999 30 - APR - 1999 30 - APR - 1999 05 - MAY - 1999 06 - MAY - 1999 07 - MAY - 1999 11 - MAY - 1999 11 - MAY - 1999 11 - MAY - 1999 12 - MAY - 1999 13 - MAY - 1999 14 - MAY - 1999 16 - MAY - 1999 17 - MAY - 1999 18 - MAY - 1999 18 - JUN - JUN - 1999 18 - JUN - JUN - 1999 18 - JUN -	25-FEB-1999; 05-MAR-1999; 09-MAR-1999; 23-MAR-1999; 25-MAR-1999; 25-MAR-1999; 01-APR-1999; 06-APR-1999; 16-APR-1999; 16-APR-1999; 19-APR-1999; 19-APR-1999;
9908-0130510 9908-013048 9908-013149 9908-0132487 9908-0132485 9908-0132486 9908-0134256 9908-0134276 9908-0134271 9908-0134370 9908-0134371 9908-0134370 9908-0135622 9908-0136021 9908-0136021 9908-0136021 9908-0136021 9908-0136021 9908-0136021 9908-0136021 9908-0136021 9908-0136021 9908-0136021 9908-0139454 9908-0139454 9908-0139456 9908-0139456 9908-0139457 9908-0139457 9908-0139458 9908-0139459 9908-0139461 9908-0139461 9908-0139461 9908-0139461 9908-0139463 9908-0139463 9908-0139463 9908-0139463 9908-0139463 9908-0139463 9908-0139463 9908-0139463 9908-0139463 9908-0139463 9908-0139463 9908-0139463 9908-0140854 9908-0140854 9908-0140854 9908-0141842 9908-0142055 9908-0142055	99US-0121825. 99US-012348. 99US-0125788. 99US-0125788. 99US-0126785. 99US-0126785. 99US-0128714. 99US-0128714. 99US-0128714. 99US-0128714. 99US-0128714. 99US-0130449.
קר של המים המים המים המים המים המים המים המים	אם אם אם אם אם אם אם אם אם אם אם אם אם א
20-JUL-1999 21-JUL-1999 21-JUL-1999 21-JUL-1999 21-JUL-1999 21-JUL-1999 22-JUL-1999 22-JUL-1999 22-JUL-1999 22-JUL-1999 23-JUL-1999 23-JUL-1999 23-JUL-1999 23-JUL-1999 24-JUL-1999 25-JUL-1999 26-JUL-1999 27-JUL-1999 27-JUL-1999 28-JUL-1999 29-AUG-1999 29-AUG-1999 29-AUG-1999 20-AUG-1999 20-AUG-1999 20-AUG-1999 20-AUG-1999 20-AUG-1999 21-AUG-1999 22-AUG-1999 23-AUG-1999 24-AUG-1999 25-AUG-1999 26-AUG-1999 27-AUG-1999 28-SEP-1999 28-SEP-1999 28-SEP-1999	12-JUL-1999 13-JUL-1999 14-JUL-1999 15-JUL-1999 16-JUL-1999 16-JUL-1999 19-JUL-1999 19-JUL-1999 19-JUL-1999 19-JUL-1999 19-JUL-1999 19-JUL-1999
99US-0144632 99US-0145086 99US-0145086 99US-0145087 99US-0145087 99US-0145087 99US-014528 99US-014528 99US-014528 99US-0145213 99US-0145213 99US-0145213 99US-0145213 99US-0146386 99US-014703 99US-014703 99US-014703 99US-014703 99US-014703 99US-014703 99US-014703 99US-014703 99US-014703 99US-014703 99US-014703 99US-014703 99US-014902 99US-014902 99US-014902 99US-014902 99US-014902 99US-014902 99US-014902 99US-014902 99US-014902 99US-014902 99US-014902 99US-014902 99US-0150864 99US-0151306 99US-0151330 99US-0151330 99US-0151331 99US-0154018 99US-0154018 99US-0154018 99US-0155456 99US-0155456 99US-0155456 99US-0155456	-01435 -01435 -01440 -01440 -01440 -01443 -01443 -01443 -01443

```
alignment_block:
US-09-484-964-2 x AAC46716
                                                                                                                                                                                                                                                                                                                                                                     alignment_scores:
                                                                                                                                                                                                                                                                                                             Quality: 218.00
Ratio: 3.254
Percent Similarity: 77.011
                                                                                                                                                                                                                                                             Align seg 1/1 to: AAC46716 from: 1 to: 505
                                                                                                                                                                                                                                                                                                                                                                     29-SEP-1999;
04-CCT-1999;
05-CCT-1999;
06-CCT-1999;
07-CCT-1999;
13-CCT-1999;
13-CCT-1999;
14-CCT-1999;
14-CCT-1999;
14-CCT-1999;
14-CCT-1999;
14-CCT-1999;
14-CCT-1999;
14-CCT-1999;
14-CCT-1999;
14-CCT-1999;
12-CCT-1999;
21-CCT-1999;
21-CCT-1999;
22-CCT-1999;
22-CCT-1999;
22-CCT-1999;
23-CCT-1999;
25-CCT-1999;
26-CCT-1999;
26-CCT-1999;
26-CCT-1999;
26-CCT-1999;
27-CCT-1999;
28-CCT-1999;
28-CCT-1999;
29-CCT-1999;
29-CCT-1999;
21-CCT-1999;
21-CCT-1999;
22-CCT-1999;
23-CCT-1999;
24-CCT-1999;
25-CCT-1999;
26-CCT-1999;
26-CCT-1999;
27-CCT-1999;
28-CCT-1999;
28-CCT-1999;
28-CCT-1999;
28-CCT-1999;
29-CCT-1999;
29-CCT-1999;
                                                                                                                                                                       237
                                                                                                                              187
                                          287
337 AGACCGGAGGC 347
                                                                                                                              94 lnThrGlyGly 97
                                                               77
                                                                                                                                                                                                                   87 GAGGACAAGAAGCCCGCGGAGGGCGCGCCCACATCAACCTTAAGGTCAA 136
                                                                                                                                                                                                                              11 GluAspLeuGlyAspLysLysGlnGlyGluTyrIleLysLeuLysValI1 27
                                                                                  oLysGluLeuGlyMetGluGluGluAspValIleGluValTyrGlnGluG
                                                                                                                                                                                                                                                                                                                                                                    99US-0156596.
99US-0157753.
99US-0157763.
99US-0157865.
99US-015823.
99US-0158369.
99US-0159294.
99US-0159294.
99US-0159331.
99US-0159331.
99US-0159638.
99US-0159638.
99US-0160767.
99US-0160767.
99US-016076.
99US-0160814.
99US-0160814.
99US-016081.
99US-016081.
99US-016081.
99US-016081.
99US-016081.
99US-016081.
99US-016081.
99US-016081.
99US-016081.
99US-016136.
99US-016136.
99US-016136.
99US-016136.
99US-016136.
99US-016136.
99US-016136.
99US-016136.
99US-016136.
99US-016193.
99US-016193.
                                                                                                                                                                                                                                                                                                               Length: 87
Gaps: 0
Percent Identity: 48.276
                                                               94
                                                                                     286
```

```
Cegn_2_6/ptodata/2/ina/6A_COMB.seq:US-09-1/2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790-2-790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM of: US-09-484-964-2 to: Issued_Patents_NA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     About: Results were produced by the GenCore software, Copyright (c) 1993-2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Date: Aug 15, 2001 5:59 PM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Command line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query length: 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Search information block:
75.50 166.2
75.50 166.2
75.50 166.2
75.50 166.2
75.50 166.2
75.50 166.2
75.50 166.2
75.50 166.2
75.50 166.2
75.50 166.2
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75.50 176.81
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Database sequences: 324599
Database length: 94655562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -Q-/Cgn2_1/USPTO_spool/US0944964/runat_14082001_111836_26806/app_query.fasta_1.158
-Q-/Cgn2_1/USPTO_spool/US0944964/runat_14082001_111836_26806/app_query.fasta_1.158
-DB-ISSued_Patents_UA -OPMT-fastap -SUFFIX=rn1 -GAPOP=12.000
-GAPEXT=4.000 -MINMATCH=0.100 -LOOPEXT=0.000
-GAPEXT=4.000 -GAPEXT=0.050 -YGAPOP-10.000 -YGAPEXT=0.500
-GAPOP=4.000 -GAPEXT=7.000 -YGAPOP-10.000 -YGAPEXT=0.500
-GAPOP=6.000 -FGAPEXT=7.000 -YGAPOP-10.000 -YGAPEXT=0.500
-DELOT=6.000 -DELEXT=7.000 -START=1 -MATRIX=blosum62
-DELOT=6.000 -GAPEXT=7.000 -START=1 -MATRIX=blosum62
-TRANS=human40.cdi -LIST=45 -DOCALIGN=200 -THR_SCORE=Pct
-THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL -OUTFNT=PfS
-NORM=ext -MINLEN=0 -MAXLEN=200000000
-NORM=ext -MINLEN=0 -MAXLEN=2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sequence Strd Orig ZScore EScore Len
/cgn2_6/ptodata/2/ina/5B_COMB.seq:US-09-213-768-1 +
/cgn2_6/ptodata/2/ina/5B_COMB.seq:US-08-853-974-2 +
/cgn2_6/ptodata/2/ina/6A_COMB.seq:US-09-172-988-2 +
/cgn2_6/ptodata/2/ina/6A_COMB.seq:US-09-172-988-2 +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -WAIT -THREADS=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           time (sec): 81.190000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-484-964-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Issued_Patents_NA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .p2n.model -DEV=xlp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 out_format : pfs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     version 4.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ! Documentation
522.00 1315.07
217.00 540.48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              161.96 0.2055

77.00 161.96 0.2095

77.00 161.96 0.2095

167.18 0.1073 106

76.00 167.18 0.1073

.00 166.77 0.1130 1

.00 166.77 0.1130

.50 167.60 0.1016

5.50 167.60 0.1016

5.50 166.24 0.1210

75.50 166.24 0.1210

75.50 166.24 0.1210

76.60 0.1016

77.50 166.24 0.1210

78.50 166.24 0.1210

78.50 166.24 0.1210

78.50 166.24 0.1210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .00 138.14 4.44
164.33 0.1544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .64.33 0.1544
0 159.17 0.29
0 159.17 0.29
0 159.17 0.29
0 159.17 0.29
50 172.76 0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        168.15
168.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.2995
0.2995
0.2995
6 0.0524
6 0.0524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6.5e-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.7e-22
1.7e-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6.5e-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.2e-65
                                                                                                                                                                                                      0.0890
                                                                                                                                                                                                                                                                                   0.0446
                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.0946
0.0946
0.0946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.2095
                                                                                                                                                                                                                                                                                                                                                                                                            0.0312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.0946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3840
3840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1946
1946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2127
2127
2127
2127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1228
1228
1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               87350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1104 | 1915 | 915 | 1032 | 11032 | 11032 | 11032 | 11032 | 11032 | 11032 | 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pate
```

```
/cgn2_6/ptodata/2/ina/6A_COMB.seq:US-09-051-969A-1 + /cgn2_6/ptodata/2/ina/5B_COMB.seq:US-08-557-309B-22 + /cgn2_6/ptodata/2/ina/6A_COMB.seq:US-08-934-306-22 + /cgn2_6/ptodata/2/ina/6B_COMB.seq:US-08-993-674A-22 + /cgn2_6/ptodata/2/ina/5B_COMB.seq:US-08-726-306A-22 + /cgn2_6/ptodata/2/ina/5B_COMB.seq:US-08-726-306A-2006A-2006A-2006A-2006A-2006A-2006A-2006A-2006A-2006A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  seq_name: /cgn2_6/ptodata/2/ina/5B_COMB.seq:US-09-213-768-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; NAME/KEY: CDS
; LOCATION: (136)..(441)
US-09-213-768-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ratio: 5.168 Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Align seg 1/1 to: US-09-213-768-1 from: 1 to: 1514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              us-09-484-964-2 \times us-09-213-768-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1, Applic Patent No. 5985664
seq_name: /cgn2_6/ptodata/2/ina/5B_COMB.seq:US-08-853-974-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Brenda F. Baker
APPLICANT: Lex M. Cowsert
TITLE OF INVENTION: ANTISENSE MODULATION OF SENTRIN EXPRESSION
FILE REFERENCE: RTS-0026
CURRENT APPLICATION NUMBER: US/09/213,768
CURRENT FILING DATE: 1998-12-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQ ID NOS: 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 1514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      186 GGAAGGTGAATATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA 235
                                                                                                                                                                                                                            236 TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA
                                                                                 436 GTT 438
                                                                                                                                                          101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI .34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer
                                                                                                                                                                                                                                                                                                                                                                                                                     67 uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
                                                                                                                                                                                                                                                                                                 84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                              GGGTCAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGG 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Application US/09213768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           522.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              73.00
+ 73.00
+ 73.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      167.78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       166.26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 166.26
164.05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.0993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.1206
```

seq\_documentation\_block: Sequence 2, Application US/08853974; Patent No. 5840534; GENERAL INFORMATION

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-853-974-2
                                                                                                                                                                                                                                                                                                                                                                                              Align seg 1/1 to: US-08-853-974-2 from: 1 to: 473
                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-484-964-2 x US-08-853-974-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
                                             269 CGGGCAGCCAATCAATGAAACTGACACTCCAGCACAGCTGGAGATGGAGG 318
                                                                                                                 219 TACTGCGAGAGGCAGGGCTTGTCAATGAGGCAGATCAGATTCAGGTTCGA 268
                                                                                                                                                                                     169 TGCAGTTCAAGATCAAGAGGCACACGCCGCTGAGCAAGCTGATGAAGGCC 218
                                                                                                                                                                                                                                                       119 AGAGAATGACCACATCAACCTGAAGGTGGCCGGGCAGGACGGCTCCGTGG 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX: 415-845-4166
INFORMATION FOR SEQ ID NO:
          84 luGluAspValIleGluValTyr...GlnGluGlnThrGlyGly 97
                                                                            67 uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
                                                                                                                                                51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                         34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                        17 sGlnGlyGluTyrTleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                            84 ATGTCCGAGGAGAAGCCCAAGGAG.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IMMEDIATE SOURCE:
LIBRARY: LUNGFI
CLONE: 2361410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
LENGTH: 473 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELECOMMUNICATION INFORMATION: TELEPHONE: 415-855-0555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
NAME: Billings, Lucy J.
REGISTRATION NUMBER: 36,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: Filed HOPRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: FastSEQ for Windows Version 2.0 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Diskett
                                                                                                                                                                                                                                                                                                                                                          1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Hillman, Jennifer L. APPLICANT: Shah, Purvi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/08/8
FILING DATE: Filed Herewith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET: 3174 POI
 :::||||:::|||:::|||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE: Incyc.
CORREST: 3174 Porter Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nucleic acid
EDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         94304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LUNGFET 03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Incyte Pharmaceuticals, Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        217.00
2.893
76.531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unit. J. Lucy J. 36,749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HUMAN SMT3-LIKE PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US/08/853,974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Identity: 44.898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PF-0289 US
Length:
                                                                                                                                                                                                                                                                                                                            .GGTGTGAAGAC 118
```

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                               alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-172-988-2
                                                                                                                                                                                                                                                               Align seg 1/1 to: US-09-172-988-2 from: 1 to: 473
                                                                                                                                                                                                                                                                                                        US-09-484-964-2 x US-09-172-988-2
                                                                                                                                                                                                                                                                                                                                                           Quality: 217.00
Ratio: 2.893
Percent Similarity: 76.531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             seq_name: /cgn2_6/ptodata/2/ina/6A_COMB.seq:US-09-172-988-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence 2, Application US/09172988 Patent No. 6136955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: 415-845-4166
INFORMATION FOR SEQ ID NO:
                                              169 TGCAGTTCAAGATCAAGAGGCACACGCCGCTGAGCAAGCTGATGAAGGCC 218
                                                                                                                    119 AGAGAATGACCACATCAACCTGAAGGTGGCCGGGCAGGACGGCTCCGTGG 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
             51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                    17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                              34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                      IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                         1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM: MEDIUM TYPE: Diskett
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MMEDIA.

LIBRARY: LUNC.

TONE: 2361410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: FastSEQ for Windows Version 2.0 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Hillman, Jennifer L.
APPLICANT: Shah, Purvi
TITLE OF INVENTION: HUMAN SMT3-LIKE PROTEIN
NUMBER OF SEQUENCES: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               319 ACGAGGACACCATCGACGTGTTTCCAAGCAGCAAGACGGGAGGT 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Billings, Lucy J
REGISTRATION NUMBER: 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US/09/172,988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CITY: Palo Alto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
   Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    94304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    473 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      E: Incyte Pharmaceuticals, Inc. 3174 Porter Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LUNGFET03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              415-855-0555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US/08/853,974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             36,749
                                                                                                                                                                                                                                                                                                                                                     Percent Identity: 44.898
II:::::::IIII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PF-0289 US
                                                                                                                                                                                                                                                                                                                                                                                             Length:
```

```
seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  seq_name: /cgn2_6/ptodata/2/ina/5B_COMB.seq:US-08-755-584-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1, Application US/08755584
Patent No. 5858711
                                                                                                                                                                                                                        alignment_scores:
                                                                                                                                                                                                                                                                                 US-08-755-584-1
                                                                                                               alignment_block:
US-09-484-964-2 x US-08-755-584-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:

APPLICANT: Glimcher, Laurie H.

APPLICANT: Hodge, Martin R.

TITLE OF INVENTION: NF-AT-INTERACTING PROTEIN NIP45 AND METHODS

TITLE OF INVENTION: OF USE THEREFOR
                                                                                                                                                                    Percent Similarity:
                                                                       Align seg 1/1 to: US-08-755-584-1 from: 1 to: 1946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE/DOCKET NUMBER: HUTELECOMMUNICATION INFORMATION:
TELEPHONE: (617)227-7400
TELEPAX: (617)227-5941
INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               219 TACTGCGAGAGGCAGGGCTTGTCAATGAGGCAGATCAGATTCAGGTTCGA 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            319 ACGAGGACACCATCGACGTGTTTCCAAGCAGCAAGACGGGAGGT 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      269 CGGGCAGCCAATCAATGAAACTGACACTCCAGCACAGCTGGAGATGGAGG 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              84 luGluAspValIleGluValTyr...GlnGluGlnThrGlyGly 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       67 uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                         MOLECULE TYPE: cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                         FEATURE:
STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Giulio A. DeConti, Jr. REGISTRATION NUMBER: 31,503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                            TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY:
                                   6 AlaLysProSerThrGluAspLeuGly......14
                                                                                                                                                                                                                                                                                                   LOCATION:
                                                                                                                                                                                                                                                                                                                         NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                    ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02109-1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Boston
                                                                                                                                                                                                          Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Massachusetts
                                                                                                                                                                                          Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60 State Street, suite 510
                                                                                                                                                                                                                                                                                                                                                                                                                                    1946 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LAHIVE & COCKFIELD
                                                                                                                                                                                                                                                                                                     13..1248
                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Floppy disk
                                                                                                                                                                          1.656
59.804
                                                                                                                                                                                                              101.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US/08/755,584
                                                                                                                                                                          Percent Identity: 25.490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HUI-026
                                                                                                                                                                                                                  Length:
```

```
seq_name: /cgn2_6/ptodata/2/ina/6A_COMB.seq:US-09-192-611-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; Sequence 1, Application US/09192611
; Patent No. 6090561
LOCATION:
US-09-192-611-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1090 CCTGATTCTCCTCTTAAGGTTCTCATGTCACACTATGAGGAAGCCATGGG 1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1040 TCCGGGTGCAGGGGAAGGAGAAACACCAGATGTTGGAGATCTCACTGTCT 1089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1190 GCAAGGAGCTGCCAGCTGATCTGGGCCTGGAATCCGGAGATCTCATCGAA 1239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1140 ACTCTCTGGACACAAGCTCTCCTTCTTTGATGGGACAAAGCTTTCAG 1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1240 GTCTGG 1245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               990 GGTGCTAGCAAGCTCTTCAGAGGCCACAGAGACATCCCAGGAGCTCCGGC 1039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15 ......AspLysLysGlnGlyGluTyrIleLysL 24
                                                                                                                                                                                                TELEFAX: (617)227-5941
INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24 euLysVallleGlyGlnAspSerSerGlu...IleHisPheLysValLys 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: NF-AT-INTERACTII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Glimcher, Laurie H.
APPLICANT: Hodge, Martin R.
TITLE OF INVENTION: NF-AT_INTERACTING PROTEIN NIP45 AND METHODS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  73 spAsnHisThrProLysGluLeuGlyMetGluGluGluAspValIleGlu 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                56 yValProMetAsnSerLeuArgPheLeuPheGluGlyGlnArgIleAlaA 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         40 MetThrThrHisLeuLysLysLeuLysGluSerTyrCysGlnArgGlnGl 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: FOR SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90 ValTyr 91
                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION DATA:
                                                                                                                                                                                                                  TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)227-7400
TELEPHONE: (617)227-5941
                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
NAME: Giulio A. DeConti, Jr.
                                                                                                                                                                             SEQUENCE CHARACTERISTICS:
                                                                              MOLECULE TYPE: cDNA
                                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                           FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                               REGISTRATION NUMBER:
                                                                                                     TOPOLOGY:
                                                                                                                       STRANDEDNESS:
                                                                                                                                          TYPE:
                                           NAME/KEY:
                                                                                                                                                             LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            02109-1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Boston
                                                                                                                                        nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60 State Street, suite 510
                                                                                                                                                               1946 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LAHIVE & COCKFIELD
                                                                                                       linear
                      13..1248
                                                                                                                       single
                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/09/192,611
                                                                                                                                                                                                                                                                                                                                                                                  US/08/755,584
                                                                                                                                                                                                                                                                                   HUI-026
```

```
GENERAL

APPLICANT: YU, Chang-En
APPLICANT: YU, Chang-En
APPLICANT: OShima, Junko
APPLICANT: Mulligan, John T.
APPLICANT: Schellenberg, Gerald D.
TITLE OF INVENTION: GENE AND GENE PRODUCTS RELATED TO
TAVENTION: WERNER'S SYNDROME
709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq_documentation_block:
    Sequence 79, Applicati
    Patent No. 6090620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq_name: /cgn2_6/ptodata/2/ina/6A_COMB.seq:US-08-781-891-79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Align seg 1/1 to: US-09-192-611-1 from: 1 to: 1946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-484-964-2 x US-09-192-611-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
                      APPLICATION NUMBER: US/08/781,891
FILING DATE: 27-DEC-1996
CLASSIFICATION: 800
ATTORNEY/AGENT INFORMATION:
NAME: NO. 6090620tenburg ph n
                                                                                                SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1190 GCAAGGAGCTGCCAGCTGATCTGGGCCTGGAATCCGGAGATCTCATCGAA 1239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1240 GTCTGG 1245
                                                                                                                                                                                                                                                                STREET: 0...
CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1090 CCTGATTCTCCTCTTAAGGTTCTCATGTCACACTATGAGGAAGCCATGGG 1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1040 TCCGGGTGCAGGGGAAGGAGAACACCAGATGTTGGAGATCTCACTGTCT 1089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          990 GGTGCTAGCAAGCTCTTCAGAGGCCACAGAGACATCCCAGGAGCTCCGGC 1039
REGISTRATION NUMBER:
                                                                                                                                            MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  90 ValTyr 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            73 spAsnHisThrProLysGluLeuGlyMetGluGluGluAspValIleGlu 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     56 yValProMetAsnSerLeuArgPheLeuPheGluGlyGlnArgIleAlaA 73
                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                          STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40 MetThrThrHisLeuLysLysLeuLysGluSerTyrCysGlnArgGlnGl 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24 euLysValIleClyGlnAspSerSerGlu...IleHisPheLysValLys 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15 ......AspLysLysGlnGlyGluTyrIleLysL 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6 AlaLysProSerThrGluAspLeuGly......14
                                                                                                                                                                                                                            98104-7092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Quality:
                                                                                                                                                                                                                                                                                    6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Application US/08781891
                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ratio:
        6090620tenburg Ph.D., Carol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   59.804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         101.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Identity: 25.490
```

```
alignment_block:
                                                                                                                                                                     alignment_scores:
Align seg 1/1 to: 5510474-1 from: 1 to: 3840
                                                                                                                                                                                                                                       5510474-1
                                                                                                                                                                                                                                                                            ; SEQ ID NO:1:
                                                 US-09-484-964-2 x 5510474-1
                                                                                                             Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq_documentation_block:
;Patent No. 5510474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      seq_name: /cgn2_6/ptodata/2/ina/backfiles1.seq:5510474-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: QUAIL, PETER H.;CHRISTENSEN, ALAN H.;HERSHEY, ;HOMARD P.;SHARROCK, ROBERT A.;SULLIVAN, THOMAS D. TITLE OF INVENTION: PLANT UBIQUITIN PROMOTER SYSTEM NUMBER OF SEQUENCES: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-781-891-79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Align seg 1/1 to reverse of: US-08-781-891-79 from: 1 to: 87350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-484-964-2 x US-08-781-891-79/rev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ouality: 84.00 Length: 55
Ratio: 2.270 Gaps: 0
Percent Similarity: 67.273 Percent Identity: 40.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11959 TTCCAGCAGCAGACA 11945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12008 CAGACACCTCC.ACATTTGGAAGTGAGGCTTAAGACAAAACTGATGTG 11960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12108 ACCACACCGCTTAGTAAACCAATGAAAGCCTATTGTAAGGGGCACGGTTT 12059
                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 25-AUG-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 191,134
FILING DATE: 03-FEB-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX: (206) 682-603
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 670,496
FILING DATE: 15-MAR-1991
APPLICATION NUMBER: 194,824
FILING DATE: 17-MAY-1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           57 lProMetAsnSerLeuArgPheLeuPheGluGlyGlnArgIleAlaAspA 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE CHARACTERISTICS:
LENGTH: 87350 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            91 TyrGlnGluGlnThr 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              74 snHisThrProLysGluLeuGlyMetGluGluGluAspValIleGluVal 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         41 ThrThrHisLeuLysLysLeuLysGluSerTyrCysGlnArgGlnGlyVa 57
                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 76,363 FILING DATE: 11-JUN-1993
                                                                                                                                                                                                                                                      LENGTH: 3840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE/DOCKET NUMBER: 240052.419
                                                                                                                                                    Quality:
                                                                                                                                  Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                           1.438
65.116
                                                                                                                                                 80.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  682-6031
00: 79:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US/08/296,268
                                                                                                    Percent Identity: 22.093
```

```
seq_name: /cgn2_6/ptodata/2/ina/5A_COMB.seq:US-08-462-092-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq_documentation_block:
US-08-462-092-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1, Applic
Patent No. 5614399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2652 CTTGGTGCTGCGCCTCAGGGGAGGCATGCAGATCTTCGTGAA...GACCC 2698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2799 GCGTTTGATCTTCGCTGGCAAGCAGCTGGAGGATGGCCGCACCCTTGCGG 2848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2749 AATGTCAAGGCCAAGATCCAGGACAAGGAGGGCATCCCACCGGACCAGCA 2798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2699 TGACCGGCAAGACTATCACCCTCGAGGTGGAGTCTTCAGACACCATCGAC 2748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2849 ATTACAACATCCAGAAGGAGAGCACCCTCCAGCTGGTGCTCCGTCTCAGG 2898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2899 GGTGGT 2904
                                                                                                                                                                                                                                                 ATTORNEY/AGENT INFORMATION:
NAME: Lloyd, Jeff
REGISTRATION NUMBER: 35,589
REFERENCE/DOCKET NUMBER: 08/4
TELECOMMUNICATION INFORMATION:
TELEPHONE: 904-375-810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13 LeuGlyAspLysLysGlnGlyGluTyrIleLysLeuLysValIleGlyGl 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29 nAspSerSerGluIleHis.PheLysValLysMetThrThrHisLeuLys 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62 uargPheLeuPheGluGlyGlnArgIleAlaAspAsnHisThrProLysG 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                46 LysLeuLysGluSerTyrCysGlnArgGlnGlyValProMetAsnSerLe 62
                                                                                                                                                                                                                 TELEFAX: 904-372-5800 INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               79 luLeuGlyMetGluGluGluAspValIleGluValTyrGlnGluGlnThr 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Robert A. APPLICANT: Thomas D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96 GlyGly 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
ADDRESSEE: Jeff Lloyd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA:
                                                                                                                                                                                               SEQUENCE CHARACTERISTICS:
                                                                            TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
MOLECULE TYPE: DNA (genomic)
                                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: FILING DATE: 5-JUN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STATE:
                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION:
                      NAME/KEY:
LOCATION:
                                                                                                                                       STRANDEDNESS:
                                                                                                                                                                          LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gainesville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Application US/08462092
                                                                                                                                                     nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ŧ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2421 N.W. 41st Street, Suite A-1
                                                                                                                                                                              3840 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Howard P. Hershey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alan H. Christensen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Peter H. Quail
                        1993..3591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                              5-JUNE-1995
                                                                                                                                       single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PLANT UBIQUITIN PROMOTER SYSTEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sullivan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sharrock
                                                                                                                                                                                                                                                                                                                                                                                                                   US/08/462,092
                                                                                                                                                                                                                                                                                                     08/462,092
```

```
alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Align seg 1/1 to: US-08-462-092-1 from: 1 to: 3840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       \overline{\text{US}-09-484-964-2} \times \overline{\text{US}-08-462-092-1}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq_name: /cgn2_6/ptodata/2/ina/6A_COMB.seq:US-08-746-822-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; Patent No. 6020190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2424 CTTGGTGCTGCGCCTCAGGGGAGGCATGCAGATCTTCGTGAA...GACCC 2470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2521 AACGTCAAGGCCAAGATCCAGGACAAGGAGGGCATTCCCCCAGACCAGCA 2570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2471 TGACCGGCAAGACTATCACCCTCGAGGTGGAGTCTTCAGACACCATCGAC 2520
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/462,092
APPLICATION NUMBER: US/08/462,092
FILING DATE: 5-JUNE-1995
ATTORNEY/ACENT INFORMATION:
NAME: LLOYd, Jeff
REGISTRATION NUMBER: 35,589
REFERENCE/DOCKET NUMBER: 08/462,092
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2621 ACTACAACATCCAGAAGGAGAGCACCCTCCACTTGGTGCTGCGCCTCAGG 2670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2571 GCGGCTCATCTTTGCTGGAAAGCAGCTTGAGGACGGGCGCACGCTTGCCG 2620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2671 GGAGGC 2676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13 LeuGlyAspLysLysGlnGlyGluTyrIleLysLeuLysValIleGlyGl 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       46 LysLeuLysGluSerTyrCysGlnArgGlnGlyValProMetAsnSerLe 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29 nAspSerSerGluIleHis.PheLysValLysMetThrThrHisLeuLys 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62 uArgPheLeuPheGluGlyGlnArgIleAlaAspAsnHisThrProLysG 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            79 luLeuGlyMetGluGluAspValIleGluValTyrGlnGluGlnThr 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: PLANT UBIQUITIN PROMOTER SYSTEM NUMBER OF SEQUENCES: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                              SOFTWARE: PatentIn Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy of COMPUTER: IBM PC com
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96 GlyGly 97
                                                                                                                                                                                                                                                            COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                             STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                 STREET: 2421 N.W. CITY: Gainesville
                                                                                                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
                                                                                                                                                                                                        APPLICATION NUMBER: US/08/746,822
                                                                                                                                                                       CLASSIFICATION:
                                                                                                                                                                                           FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Quality:
                                                                                                                                                                                                                                                                                                                                                          32606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Application US/08746822
                                                                                                                                                                                                                                                                                                                                                                                                  FL
                                                                                                                                                                                                                                                                                                                                                                                                                                       E: Jeff Lloyd
2421 N.W. 41st Street, Suite A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Robert A. Sharrock
Thomas D. Sullivan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Peter H. Quail
Alan H. Christensen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Howard P. Hershey
                                                                                                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        78.50 Length: 00
1.402 Gaps: 2
65.116 Percent Identity: 22.093
                                                                                                                                                                                                                                                                                                                 Floppy disk
                                     08/462,092
```

```
seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                         seq_name: /cgn2_6/ptodata/2/ina/6A_COMB.seq:US-09-094-350-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alignment_block:
US-09-484-964-2 x US-08-746-822-1
                                                                                                                                                                                                                                                                                                                                          Sequence 1, Application US/09094350
Patent No. 6054574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
US-08-746-822-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Align seg 1/1 to: US-08-746-822-1 from: 1 to: 3840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity: 65.116 Percent Identity: 22.093
                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                       APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                        CORRESPONDENCE ADDRESS:
ADDRESSEE: Jeff Lloyd
STREET: 2421 N.W. 41st Street, Suite A-1
CITY: Gainesville
                                                                                                                                                                                                                                                                                                                                                                                                                                                          2671 GGAGGC 2676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2621 ACTACAACATCCAGAAGGAGAGCACCCTCCACTTGGTGCTGCGCCTCAGG 2670
                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2571 GCGGCTCATCTTTGCTGGAAAGCAGCTTGAGGACGGGCGCACGCTTGCCG 2620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2521 AACGTCAAGGCCAAGATCCAGGACAAGGAGGGCATTCCCCCAGACCAGCA 2570
                                                                                                                                                                                           NUMBER OF SEQUENCES:
                                                                                                                                                                                                             TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2471 TGACCGGCAAGACTATCACCCTCGAGGTGGAGTCTTCAGACACCATCGAC 2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2424 CTTGGTGCTGCGCCTCAGGGGAGGCATGCAGATCTTCGTGAA...GACCC 2470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INFORMATION FOR SEQ ID NO: 1: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96 GlyGly 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   62 uArgPheLeuPheGluGlyGlnArgIleAlaAspAsnHisThrProLysG 79
                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     79 luLeuGlyMetGluGluGluAspValIleGluValTyrGlnGluGlnThr 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    46 LysLeuLysGluSerTyrCysGlnArgGlnGlyValProMetAsnSerLe 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29 nAspSerSerGluIleHis.PheLysValLysMetThrThrHisLeuLys 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13 LeuGlyAspLysLysGlnGlyGluTyrIleLysLeuLysValIleGlyGl 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: 904-375-8100
TELEFAX: 904-372-5800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH:
                                                                   32606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Quality:
                                                                                                      FΓ
                                                                                                                                                                                                   Howard P. Hershey
Robert A. Sharrock
Thomas D. Sullivan
TVENTION: PLANT UBIQUITIN PROMOTER SYSTEM
                                                                                                                                                                                                                                                                                        Peter H. Quail
Alan H. Christ
                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3840 base pairs
                                                                                                                                                                                                                                                                                    Christensen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      78.50
```

```
seq_documentation_block:
   Sequence 42, Application US/08284784
   Patent No. 5629172
                                                                                                             seq_name: /cgn2_6/ptodata/2/ina/5A_COMB.seq:US-08-284-784-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-094-350-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Align seg 1/1 to: US-09-094-350-1 from: 1 to: 3840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-484-964-2 x US-09-094-350-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Quality: 78.50
Ratio: 1.402
Percent Similarity: 65.116
                       GENERAL INFORMATION:
                                                                                                                                                                   2671 GGAGGC 2676
                                                                                                                                                                                                                                  2621 ACTACAACATCCAGAAGGAGAGCACCCTCCACTTGGTGCTGCGCCTCAGG 2670
                                                                                                                                                                                                                                                                                                               2571 GCGGCTCATCTTTGCTGGAAAGCAGCTTGAGGACGGGCGCACGCTTGCCG 2620
APPLICANT: MASCARENHAS, DESMOND
                                                                                                                                                                                                                                                                                                                                                                                                 2521 AACGTCAAGGCCAAGATCCAGGACAAGGAGGGCATTCCCCCCAGACCAGCA 2570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2424 CTTGGTGCTGCGCCTCAGGGGAGGCATGCAGATCTTCGTGAA...GACCC 2470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2471 TGACCGGCAAGACTATCACCCTCGAGGTGGAGTCTTCAGACACCATCGAC 2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: 904-372-5800
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 3840 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY: lin
MOLECULE TYPE:
MOLECULE TYPE:
                                                                                                                                                                                                          96 GlyGly 97
                                                                                                                                                                                                                                                                          79 luLeuGlyMetGluGluAspValIleGluValTyrGlnGluGlnThr 95
                                                                                                                                                                                                                                                                                                                                                        62 uArgPheLeuPheGluGlyGlnArgIleAlaAspAsnHisThrProLysG 79
                                                                                                                                                                                                                                                                                                                                                                                                                                     46 LysLeuLysGluSerTyrCysGlnArgGlnGlyValProMetAsnSerLe 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29 nAspSerSerGluIleHis.PheLysValLysMetThrThrHisLeuLys 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13 LeuGlyAspLysLysGlnGlyGluTyrIleLysLeuLysValIleGlyGl 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELECOMMUNICATION INFORMATION:
TELEPHONE: 904-375-8100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
NAME: Lloyd, Jeff
REGISTRATION NUMBER: 35,589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS: sir
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US/08/462,092 FILING DATE: 5-JUNE-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/09/094,350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   nucleic acid
EDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3840 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08/746,822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Identity: 22.093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                08/462,092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
```

```
alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-284-784-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Quality: 77.50
Ratio: 1.174
Percent Similarity: 58.929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: (415) 494-0792
TELEX: 706141
INFORMATION FOR SEQ ID NO: 4
SEQUENCE CHARACTERISTICS:
LENGTH: 915 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-484-964-2 x US-08-284-784-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Align seg 1/1 to: US-08-284-784-42 from: 1 to: 915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: EXPRESSION OF BUSION POLYPEPILES
TITLE OF INVENTION: TRANSPORTED OUT OF THE CYTOPLASM WITHOUT LEADER SEQUENCES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: Patentin Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER: 22
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 813-5600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                      417 AGGCGGCCAGGATATAACTGACTTCACCATGCAATTTGTGTCTTCCGACC 466
                                                                                                                                                                 517 TTGGAAGTTGAATCTTCCGATACCATCGACAACGTTAAGTCGAAAATTCA 566
                                                                                                                                                                                                                                                  467 GCGGTGGCATGCAGATTTTCGTCAAGACTTTGACCGGTAAAACCATAACA 516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US/08/284,784 FILING DATE: 02-AUG-1994 CLASSIFICATION: 530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CITY: Palo Alto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ZIP: 94304-1018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                                                                                        31 erSerGluIleHisPheLysValLysMetThrThr......42
                                                                                                                                                                                                                                                                                                                                                                          17 sGlnGlyGluTyrIle.....LysLeuLysValIleGlyGlnAspS 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE: (415) 494-0792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: PARK, FREDDIE K.
REGISTRATION NUMBER:
                                                                                                                       52 sGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGlyG 69
                                     69 lnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGlu 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                 AGACAAGGAAGGTATCCCTCCAGATCAACAAAGATTGATCTTTGCCGGTA 616
                                                                                                                                                                                                      .....HisLeuLysLysLeuLysGluSerTyrCy 52
AGCAGCTAGAAGACGGTAGAACGCTGTCTGATTACAACATTCAGAAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       755 Page Mill Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARRILLO, PEDRO A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OLSON, PAMELA S. OLSEN, DAVID R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MORRISON & FOERSTER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EXPRESSION OF FUSION POLYPEPTIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  35,636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Identity: 19.643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22095-20275.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
```

```
seq_name: /cgn2_6/ptodata/2/ina/5B_COMB.seq:US-08-854-811-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seq_documentation_block:
                                                                                                                                                                                                                                                                                          US-08-854-811-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence 42, Application US/08854811
Patent No. 5914254
                                                                                                                                                                                                                                          alignment_scores:
                                                                                                                                                      alignment_block:
                                                                                                                                    US-09-484-964-2 \times US-08-854-811-42
                                                                                                    Align seg 1/1 to: US-08-854-811-42 from: 1 to: 915
                                                                                                                                                                                         Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       667 TCCACCTTACATCTTGTGCTAAGGCTCCGCGGTGGT 702
                                                                                                                                                                                                                                                                                                                                                                                                INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
ADDRESSEE: MORRISON & FOERSTER
STREET: 755 PAGE MILL ROAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     86 AspValIleGluValTyrGlnGluGlnThrGlyGly 97
                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Buffinger, Nicholas S
REGISTRATION NUMBER: 39,124
REFERENCE/DOCKET NUMBER: 220
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650.813-5600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 08/284,784
FILING DATE: 02-AUG-1994
APPLICATION NUMBER: 08/100,744
FILING DATE: 02-AUG-1993
ATTORNBY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: FastSEQ for Windows Version 2.0b CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                   STREET: 755 PAGE
CITY: Palo Alto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ZIP:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                          LENGTH: 915 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
17 sGlnGlyGluTyrIle.....LysLeuLysValIleGlyGlnAspS 31
                                                                  1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX:
                                                                                                                                                                                                                                                                                                             TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              94304-1018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CA
                                                                                                                                                                                                                                                                                                                                                                                                                  706141
                                                                                                                                                                                                           Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Olsen, David R.
Cohen, Pedro A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mascarenhas, Desmond
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Olson, Pamela S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Zhang, Yang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                  650-494-0792
                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12-MAY-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Diskette
                                                                                                                                                                                           77.50
1.174
58.929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EXPRESSION OF FUSION POLYPEPTIDES TRANSPORTED OUT OF THE CYTOPLASM WITHOUT LEADER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Windows
                                                                                                                                                                                               Percent Identity: 19.643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22095-20275.21
```

```
alignment_scores:
                                                                                                                               US-08-505-486-92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             seq_name: /cgn2_6/ptodata/2/ina/5B_COMB.seq:US-08-505-486-92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Patent No. 5955573
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION: 536
ATTORNEY/AGENT INFORMATION:
NAME: WALKER, BARBARA W.
REGISTRATION NUMBER: 35,400
REFERENCE/DOCKET NUMBER: 209:
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 92, Application US/08505486 Patent No. 5955573
                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX: (202)783-6031 INFORMATION FOR SEQ ID NO: 92:
                                                                                                                                                                                                                   MOLECULE TYPE
                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
APPLICATION NUMBER: U.S. 08/279,472
FILING DATE: 22-JUL-1994
CTASSITEME TO THE STATE OF THE STATE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OPERATING SYSTEM: DOS
SOFTWARE: WORDPRESCH 5.1+
CURRENT APPLICATION DATA:
ADDITOR WITHOUT TO THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: DISKETT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Jesse M. Jaynes
TITLE OF INVENTION: UBIQUE
TITLE OF INVENTION: CONSTRI
TITLE OF INVENTION: METHOD:
NUMBER OF SEQUENCES: 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 667 TCCACCTTACATCTTGTGCTAAGGCTCCGCGGTGGT 702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       617 AGCAGCTAGAAGACGGTAGAACGCTGTCTGATTACAACATTCAGAAGGAG 666
                                                                                                                                                                                                                                                                                          TYPE: NUCLEIC ACID
STRANDEDNESS: DOUBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      567 AGACAAGGAAGGTATCCCTCCAGATCAACAAAGATTGATCTTTGCCGGTA 616
                                                                                                                                                                       DESCRIPTION:
                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         517 TTGGAAGTTGAATCTTCCGATACCATCGACAACGTTAAGTCGAAAATTCA 566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/01
FILING DATE: 21-JUL-1995
CHASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86 AspVallleGluValTyrGlnGluGlnThrGlyGly 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        467 GCGGTGGCATGCAGATTTTCGTCAAGACTTTGACCGGTAAAACCATAACA 516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      417 AGGCGGCCAGGATATAACTGACTTCACCATGCAATTTGTGTCTTCCGACC 466
                                                                                                                                                                                                                                                                                                                                                                              LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  69 lnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGlu 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52 sGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGlyG 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    43 ......HisLeuLysLysLeuLysGluSerTyrCy 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   31 erSerGluIleHisPheLysValLysMetThrThr......42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         555 Thirteenth Street N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    USA
                                                                                                                                                                                                                                                       LINEAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IBM COMPATIBLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (202)783-6040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ROTHWELL, FIGG, ERNST & KURZ
                                                                                                                                        GENOMIC DNA AND OTHER NUCLEIC ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DISKETTE, 3.5 INCH, 1.4 MB STORAGE
                                                                                                                                                                                                                                                                                          DOUBLE STRANDED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      UBIQUTIN-LYTIC PEPTIDE FUSION GENE CONSTRUCTS, PROTEIN PRODUCTS DERIVING THEREFROM, AND METHODS OF MAKING AND USING SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US/08/505,486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2093-117A
```

```
seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq_name: /cgn2_6/ptodata/2/ina/6A_COMB.seq:US-08-801-028-92
                                                                                                                                                                                                                                                    SOFTWARE: M.S. WORD 5.0

CURRENT APPLICATION DATA:

APPLICATION UNUBER: US/08/801,028

FILING DATE: 19-FEB-1997

PRIOR APPLICATION DATA:

APPLICATION UNMBER: 08/279,472

FILING DATE: JULY 22, 1994

APPLICATION NUMBER: 08/225,476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 92, Application US/08801028 Patent No. 6018102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Align seg 1/1 to: US-08-505-486-92 from: 1 to: 1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Quality: 77.00
Ratio: 1.604
Percent Similarity: 70.588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-484-964-2 x US-08-505-486-92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
             FILING DATE: 11-08-93
ATTORNEY/AGENT INFORMATION:
NAME: WASSERMAN, FRAN S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1107 AAGGAGTCAACTCTCCATCTCGTGCTCCGTCTCCGTGGTGGTGGATCCGC 1156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: DISKETT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: JOAN GARBARINO
APPLICANT: JESSE M. JAYNES
APPLICANT: WILLIAM BELKNAP
TITLE OF INVENTION: UBIQUITIN-LYTIC PEPTIDE FUSION GENE CONSTRUCTS, PROTEIN PRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1157 TGTT 1160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1057 CCGGAAAGCAGCTTGAGGATGGTCGTACTCTTGCCGACTACAACATCCAG 1106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          34 IleHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSe 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1007 GATCCAGGACAAGGAAGGGATTCCCCCCAGACCAGCAGCGTTTGATTTTCG 1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100 rVal 101
                                                              APPLICATION NUMBER: 0 FILING DATE: 11-08-93
                                                                                                        APPLICATION NUMBER: FILING DATE: 11-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                957 ATCACCCTAGAGGTTGAGTCTTCCGACACCATCGACAATGTCAAAGCCAA 1006
                                                                                                                                                                                            APPLICATION NUMBER: 0:
FILING DATE: 04-08-94
                                                                                                                                                         FILING DATE:
                                                                                                                                                                          FILING DATE: 04-08 APPLICATION NUMBER:
                                                                                                                                                                                                                                      APPLICATION NUMBER: 0 FILING DATE: 04-20-94
                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: APPLE NO OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              84 GluGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerTh 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY: U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY: RESEARCH TRIANGLE PARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE: STEVEN J. HULTQUIST
ADDRESSEE: INTELLECTUAL PROPERTY/TECHNOLOGY LAW
STREET: 200 PARK DRIVE, SUITE 210
STREET: P.O. BOX 14329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  67 luGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGlu 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         50 rTyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheG 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NORTH CAROLINA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLE MACINTOSH
                                                                                                                                                  06-04-93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DISKETTE, 3.5 INCH, 1.4 MB STORAGE
                                                                                                        11-08-93
                                                                                                                                                                                                                                                                                                                                                                                                                                          MACINTOSH
                                                                                 08/148,889
                                                                                                                                                                       08/039,620
                                                                                                                                                                                                                 08/225,476
                                                                                                                             08/148,491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Identity: 22.059
```

4013-104

```
, MOLECULE TYPE:
; DESCRIPTION: GENOMIC DNA AND OTHER NUCLEIC ACID
US-08-801-028-92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 alignment_block:
US-09-484-964-2 x US-08-801-028-92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq_name: /cgn2_6/ptodata/2/ina/6A_COMB.seq:US-09-340-154-92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Align seg 1/1 to: US-08-801-028-92 from: 1 to: 1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: (919)990-9532 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 92, Application US/09340154 Patent No. 6084156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1107 AAGGAGTCAACTCTCCATCTCGTGCTCCGTCTCCGTGGTGGATCCGC 1156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1057 CCGGAAAGCAGCTTGAGGATGGTCGTACTCTTGCCGACTACAACATCCAG 1106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1007 GATCCAGGACAAGGAAGGGATTCCCCCAGACCAGCAGCGTTTGATTTTCG 1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER: 40:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (919)990-9531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1157 TGTT 1160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Jesse M. Jaynes
TITLE OF INVENTION: UBIQUTI
TITLE OF INVENTION: CONSTRU
TITLE OF INVENTION: METHODS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 957 ATCACCCTAGAGGTTGAGTCTTCCGACACCATCGACAATGTCAAAGCCAA 1006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100 rVal 101
                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
ADDRESSEE: ROTHWELL, FIGG, ERNST & KURZ
STREET: 555 Thirteenth Street N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     34 IleHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSe 50
                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: DISKETTE, 3.5 INCH, 1.4 MB STORAGE
                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    84 GluGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerTh 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           67 luGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGlu 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                50 rTyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheG 67
                                                                                       CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: NUCLEIC ACID
STRANDEDNESS: DOUB!
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ENGTH:
                     APPLICATION NUMBER: FILING DATE: CLASSIFICATION:
                                                                                                          OPERATING SYSTEM: DOS
SOFTWARE: WordPerfect 5.1+
                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                STATE: D.
                                                                                                                                                                                                                                                                                        CITY: Washington
                                                                                                                                                                                                                                                                                                             STREET:
                                                                                                                                                         COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Quality:
                                                                                                                                                                                                                        20004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1228
                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LINEAR
                                                                                                                                                         IBM COMPATIBLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       77.00
1.604
70.588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DOUBLE STRANDED
                                                                                                                                                                                                                                                                                                                                                                                                       UBIQUTIN-LYTIC PEPTIDE FUSION GENE CONSTRUCTS, PROTEIN PRODUCTS DERIVING THEREFROM, AND METHODS OF MAKING AND USING SAME
                                                                 US/09/340,154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          92:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Identity: 22.059
```

```
US-09-340-154-92
                                                                                                                                                                                                                                                                                                                                                                                                                                                     alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                        Align seg 1/1 to: US-09-340-154-92 from: 1 to: 1228
                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-484-964-2 x US-09-340-154-92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                          1107
                                                                                                                                                                                                                                  1007 GATCCAGGACAAGGAAGGGATTCCCCCAGACCAGCGGGTTTGATTTTCG 1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY: LINEAR
MOLECULE TYPE:
DESCRIPTION: GENOMIC DNA AND OTHER NUCLEIC ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 22-JUL-1994
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                     1057 CCGGAAAGCAGCTTGAGGATGGTCGTACTTTGCCGACTACAACATCCAG 1106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELECOMMUNICATION INFORMATION:
1157 TGTT 1160
                                                                                                                                                                                                                                                                                                               957 ATCACCCTAGAGGTTGAGTCTTCCGACACCATCGACAATGTCAAAGCCAA 1006
                                   100 rVal 101
                                                                                                                                                                                                                                                                                                                                                 34 IleHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSe 50
                                                                                               67 luGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGlu 83
                                                                                                                                                                                                                                                                      50 rTyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheG 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: WALKER, BARBARA W.
REGISTRATION NUMBER: 35,400
REFERENCE/DOCKET NUMBER: 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 08/505,486
FILING DATE: 21-JUL-1995
APPLICATION NUMBER: U.S. 08/279,472
FILING DATE: 22-JUL-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: NUCLEIC ACID
STRANDEDNESS: DOUBLE STRANDED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH:
                                                                          AAGGAGTCAACTCTCCATCTCGTGCTCCGTCTCCGTGGTGGATCCGC 1156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Quality:
Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              : (202)783-6040
(202)783-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              77.00
1.604
70.588
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps: 0
Percent Identity: 22.059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 92:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2093-117A
```

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                        Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                        Database :
  Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                               232
223.5
223.5
218.25
208
147
98
93.5
88.5
85.5
82.5
                                                                                                                                                                                                                                                                                 Score
                                                                                                                                                                                                                                                                                 Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                       PIR_68:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          219241 segs, 76174552 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-484-964-2
525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                August 15, 2001, 16:37:34; Search time 73.79 Seconds
 16.9
16.3
16.3
15.4
115.4
115.4
115.4
115.4
115.2
115.2
115.2
115.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MSDQEAKPSTEDLGDKKQGE.....MEEEDVIEVYQEQTGGHSTV 101
                                                                                                                                                                                                                                                                                                                                                                  pir1:*
pir2:*
pir3:*
pir4:*
                                                                                                                Length
 DB
                                                                                                                                         G86254
S61158
S50096
                                                                                                                                                                                       S63999
T09529
T00792
                                                                                   C84549
UQNVAC
C72854
T41781
                                                                                                                                                                     S55242
C86439
                                                                                                                                                                                                                          JC4760
T04807
                                                                                                                        A96580
T39786
                                                                                                                                                                                                                                             T40313
T43537
                                                                                                                                                                                                                  T04102
           $62909
A27806
UQDOR
T30390
UQDOR7
D34080
B27806
C34080
                                                                                                                                                                                                                                                                                                            SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (without alignments)
104.264 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         219241
                                                                                                                                               SMT3 protein - Cae
ubiquitin-like pro
ubiquitin-like pro
SMT3 protein - hum
SMT3 protein homol
SMT3 protein - ric
SMT3 protein - ryea
ubiquitin-like pro
hypothetical prote
polyubiquitin 2
protein T19E23.13
hypothetical prote
hypothetical prote
hypothetical prote
probable ubiquitin ubiquitin / riboso ubiquitin 18 - sli ubiquitin (clone l polyubiquitin 5 (c polyubiquitin 5 (c
                                                      wiral ubiquitin -
ubiquitin orf35
ubiquitin precurso
polyubiquitin 5 (c
ubiquitin / riboso
                                                                                                   probable splicing hypothetical prote hypothetical prote probable ubiquitin ubiquitin abiquitin - Autogr
                                                                                                                                                                                                                                                                                Description
```

RESULT T40313

ubiquitin-like modifier protein - fission yeast (Schizosaccharomyces pombe) C;Specites: Schizosaccharomyces pombe C;Date: 03-Dec-1999 #sequence\_revision 03-Dec-1999 #text\_change 18-Feb-2000 C;Accession: T40313; T43416 R;Wood, V.; Rajandream, M.A.; Barrell, B.G.; Lelaure, V.; Galibert, F.

Query Match Query Match Best Local Similarity 58.8%; Pred. No. 9.4e-21; Best Local Similarity 58.8%; Pred. No. 9.4e-21; Matches 57; Conservative 15; Mismatches 18; Indels 7; G.  Qy 1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCORQGVPMN  :	38:U94830; NID:g2341094; r, J. L Data Library, January 1 Equence of C. elegans cos Z21248 y; translated from GB/EMB y; translated from GB/EMB EMBL:AF043701; PIDN:AAB97 e: strain Bristol N2; clc ein is asuppressor of MIF 12C11.2 2 SMT3 protein	RESULT 1  JC5582 SMT3 protein - Caenorhabditis elegans C; Species: Caenorhabditis elegans C; Species: Caenorhabditis elegans C; Accession: JC5582; T32928 R; Choudhury, B.K.; Li, S.S.L. Biochem. Biophys. Res. Commun. 234, 788-791, 1997 A; Title: Identification and characterization of th A; Reference number: JC5582; MUID:97318858 A; Accession: JC5582	30 80 15.2 442 2 B71083 31 80 15.2 532 2 A34080 32 79 15.0 76 2 T39965 34 79 15.0 80 2 T29305 35 78.5 15.0 138 2 S62740 36 76.5 14.6 328 2 T24432 37 76 14.5 81 2 JN0710 38 76 14.5 128 2 S45304 39 76 14.5 128 2 S45304 40 76 14.5 274 2 G84602 41 75.5 14.4 379 2 S55245 42 75 14.3 133 2 A49768 44 75 14.3 134 1 UQNUR 45 75 14.3 154 2 T46664 ALIGNMENTS
DB 2; Length 91; e-21; e-21; 18; Indels 7; Gaps 2; VKMTTHLKKLKESYCOROGVPMN 60     :	4; PIDN:AAB67608.1; PID:g2341095 y 1998 cosmid K12C11. EMBL/DDBJ EMBL/DDBJ B97577.1; GSPDB:GN00019; CESP:K12C11.2 clone K12C11 MIF2 mutation in a centromere protein.	97 #text_change 05-Nov-1999 17 the SMT3 cDNA and gene from nematode	hypothetical prote polyubiquitin 7 (c ubiquitin-1ke pro ORF MSV144 probabl ubiquitin-like pro ORF MSV145 prote ubiquitin-like pro ubiquitin-like pro ubiquitin / riboso hypothetical prote hypothetical prote polyubiquitin 5 - ubiquitin / riboso polyubiquitin / riboso polyubiquitin / riboso ubiquitin / riboso ubiquitin / riboso ubiquitin / riboso ubiquitin/s27a fus

```
RESULT
JC4760
                                                                                       밁
                                                                                                                         ρy
                                                                                                                                                                          뮹
                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                    A;Gene: smt3
C;Superfamily: yeast SMT3 protein
                                                                                                                                                                                                                                                                                                                                                                                                                     A; Experimental source: strain 358 C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R;Pelletier, M.F.; Dignard, D. submitted to the EMBL Data Library, August 1997 submitted to the EMBL Data Library, August 1997 A;Description: Ubiquitin-like protein (Schizosaccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A:Map position: 2
A:Introns: 43/3; 93/3
C:Superfamily: yeast SMT3 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Reference number: 222555
A; Accession: T43537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Date: 21-Jan-2000 #sequence_revision 21-Jan-2000 #text_change 02-Sep-2000 C;Accession: T43537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      V<sub>A</sub>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-117 <NIS>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Cross-references: EMBL:AL078627; PIDN:CAB44758.1; GSPDB:GN00067; SPDB:SPBC365.06
A;Experimental source: strain 972h-; cosmid C365
R;Nishide, J.; Nishi, T.; Murakami, Y.; Matsuda, H.; Kawamukai, M.; Tanaka, K.
submitted to the EMBL Data Library, August 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Cross-references: EMBL: AF019235;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Residues: 1-90 <PEL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C; Species: Schizosaccharomyces pombe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ubiquitin-like protein smt3 - fission yeast (Schizosaccharomyces pombe)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Gene:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: EMBL:AB017187; PIDN:BAA32595.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Reference number: Z22499
A; Accession: T43416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Description: The fission yeast ubiquitin-like modifier
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Reference number:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          submitted to the EMBL Data Library, June 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Accession: T40313
                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                     54
                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          76 LRFLVDGERIRPDQTPAELDMEDGDQIEAVLEQLGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62 LRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25 SQQDVKPST--
                                                                                                                                                                                          7 KPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQCVPMNSLRFLF 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 SDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNS 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pmt3; SPBC365.06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ω
                                                                                DGERIRPDQTPAELDMEDGDQIEAVLEQLGG
                                                                                                                                                                     KPST-----EHINLKVVGQDNNEVFFKIKKTTEFSKLMKIYCARQGKSMNSLRFLV 53
                                                                                                                                                                                                                                                               48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      50;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1-117 <WOO>
                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative 12; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Z21920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         46.6%;
52.1%;
                                                                                                                                                                                                                                                        44.5%; Score 233.5; DB 2; 52.7%; Pred. No. 3.8e-16; ative 11; Mismatches 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -EHINLKVVGQDNNEVFFKIKKTTEFSKLMKIYCARQGKSMNS 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 244.5; DB 2
Pred. No. 4.2e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              PIDN: AAB71541.1
                                                                                  84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25;
                                                                                                                                                                                                                                                                                                    Length 90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 117;
                                                                                                                                                                                                                                                          9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9;
                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                        1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۲,
```

```
QY
smt3 protein - rice
                          T04102
                                                                                                                                                                                                                         Вþ
                                                                                                                                                                                                                                                                         QУ
                                                                                                                                                                                                                                                                                                                                                                                                                                                      C; Superfamily: yeast SMT3 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Introns: 25/3; 7:
A; Note: F10M23.180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: DNA
A; Residues: 1-100 <BEV>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R;Bevan, M.; Lecharny, A.; Chefdor, F.; Krivitzky, M.; Kreis, M.; Hoheisel, J.; Mewes submitted to the Protein Sequence Database, February 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SMT3 protein homolog F10M23.180 - Arabidopsis thaliana
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 23-Apr-1999 #sequence_revision 23-Apr-1999 #text_change 26-Aug-1999
C;Accession: T04807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Map position: 4
C; Superfamily: yeast SMT3 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C;Species: Homo sapiens (man)
C;Date: 10-May-1996 #sequence_revision 16-Aug-1996 #text_change 21-Jul-2000
C;Accession: JC4760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Map position: 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Experimental source: cultivar Columbia; BAC clone F10M23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Reference number: Z15385
A; Accession: T04807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R;Mannen, H.; Tseng, H.M.; Cho, C.; Li, S.S.L.
Biochem. Biophys. Res. Commun. 222, 178-180, 1996
A;Title: Cloning and expression of human homolog I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Cross-references: EMBL: AL035440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Cross-references: GDB:5752862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Gene: GDB:SMT3H2; HSMT3; SMT3B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: GB:L76416; NID:g5566605; PIDN:AAD45399.1; PID:g5566606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: mRNA
A; Residues: 1-95 < MAN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Reference number: JC4760; MUID:96212932
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Accession: JC4760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SMT3 protein - human
                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genetics:
                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                        68 RAEQTPDELDMEDGDEIDAMLHQTGG 93
                                                                                                                                                                                                                                                                         15 DKKQGE---YIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRI 71
                                                                                                                                                                     72 ADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61 SLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MADEKPKEGVK----TENNDHINLKVAGQDGSVVQFKIKRHTPLSKLMKAYCERQGLSMR 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMN 60
                                                                                                                                                                                                                       \tt DKKPGDGGAHINLKVKGQDGNEVFFRIKRSTQLKKLMNAYCDRQSVDMNSIAFLFDGRRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QIRFRFDGQPINETDTPAQLEMEDEDTIDVFQQQTGG 93
                                                                                                                                                                                                                                                                                                                             44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        75/3
                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                        42.6%; Score 223.5; DB 2; 51.2%; Pred. No. 4.1e-15; vative 14; Mismatches 25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   44.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 232; DB 2;
Pred. No. 5.7e-16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HSMT3 to yeast SMT3 suppressor of MI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 95;
                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                          Length 100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                           Ψ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                           1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ۲.
```

C;Species: Oryza sativa (rice)
C;Date: 23-Apr\_1999 #sequence\_revision 23-Apr-1999 #text\_change 21-Jul-2000

R;Lapenta, V.; Chiurazzi, P.; Vanderspek, P.; Pizzuti, A.; Hanaoka, F.; Brahe,

9

C; Accession:

T04102

```
A;Accession: T04102
A;Reference number: 205239; MUID:97237059
A;Recession: T04102
A;Reference number: 205239; MUID:97237059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Status: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Cross-references: EMBL:x99608; NID:g1668772; PIDN:CAA67922.1; PID:g1668773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Molecule type: mRNA
A; Residues: 1-100 <LAP>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Gene: Surco Protein C; Superfamily: Yeast SMT3 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N;Alternate names: protein YDR510w
C;Species: Saccharomyces cerevisiae
C;Date: 16-May-1996 #sequence_revision 19-Jul-1996 #text_change 24-Sep-1999
C;Accession: S63999; S69567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  submitted to the EMBL Data Library, August 1995
A; Description: The sequence of S. cerevisiae cosmids 8166, 9787, 9717, and lambda 3073.
A; Reference number: S69553
A; Accession: S69567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Cross-references: EMBL: U27233; NID: g881371; PIDN: AAB01675.1; PID: g881372
A; Experimental source: strain YPH1/YNN214
R; Dietrich, F.S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Reference number: S59668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R;Meluh, P.B.; Koshland, D.E.
submitted to the EMBL Data Library, May 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                              A;Residues: 1-101 <DIE>
A;Cross-references: EMBL:U33057; NID:g927764; PIDN:AAB64951.1; PID:g927779; MIPS:YDR510w
A;Cross-references: EMBL:U33057; NID:g927764; PIDN:AAB64951.1; PID:g927779; MIPS:YDR510w
A;Cross-references:
                                                                                                                                                                                                                                                                                                                                        C; Superfamily: yeast SMT3 protein
                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: SGD:S0002918; MIPS:YDR510w
                                                                                                                                                                                                                                                                                                                                                            A; Map position: 4R
                                                                                                                                                                                                                δÃ
                                                                                                            밁
                                                                                                                                                                                밁
ubiquitin-like protein - chickpea
C;Species: Cicer arietinum (chickpea, garbanzo)
                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62 AFLFDGRRLRGEQTPDELEMEDGDEIDAMLHQTGG 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63 RFLFEGORIADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6 EEDKKPA----GGEGGGAHINLKVKGQDGNEVFFRIKRSTQLKKLMNAYCDRQSVDMNAI 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3 DQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSL 62
                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 Similarity
43; Conserva
                                                                                                                                              57 VPMNSLRFLFEGORIADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                  1 MSD----QEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQG 56
                                                                                                            58 KEMDSLRFLYDGIRIQADQTPEDLDMEDNDIIEAHREQIGG 98
                                                                                                                                                                                1 MSDSEVNQEAKPEVKP--EVKPETHINLKV-SDGSSEIFFKIKKTTPLRRLMEAFAKRQG 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            s63999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                            Conservative 19; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     42.3%; Score 222; DB 2;
45.3%; Pred. No. 5.8e-15;
                                                                                                                                                                                                                                                                              41.6%; Score 218.5; DB 2; Length 101;
48.5%; pred. No. 1.3e-14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
```

```
A; Description: Isolation and characterization of a cDNA sequence CanSMT3 from Cicer a A; Reference number: Z16717
A; Reference: T09529
A; Accession: T09529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Date: 16-Jul-1999 #sequence_revision 16-Jul-1999 #text_change 20-Jun-2000 C;Accession: T09529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Experimental source: cultivar Castellana; 5 d old seedlings; etiolated epicotyls C;Superfamily: yeast SMT3 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: mRNA
A; Residues: 1-115 <LAB>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           hypothetical protein At2g32760 [imported] - Arabidopsis thaliana hypothetical protein F2417.10 N;Alternate names: hypothetical protein F2417.10 C;Species: Arabidopsis thaliana (mouse-ear cress) c;Species: Arabidopsis thaliana (mouse-ear cress) text_change 16-Feb-2001 C;Date: 12-Feb-1999 #sequence_revision 12-Feb-1999 #text_change 16-Feb-2001 C;Accession: T00792; B84737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R:Rounsley, S.D.; Lin, X.; Ketchum, K.A.; Crosby, M.L.; Brandon, R.C.; Sykes, S.M.; K submitted to the EMBL Data Library, February 1998 a; Description: Arabidopsis thaliana chromosome II BAC F24L7 genomic sequence. A; Reference number: Z14204 A; Reference number: Z14204 A; Reference number: Z14204 A; Reference number: Z14204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Experimental source: cultivar Columbia
R; Lin, X.; Kaul, S; Rounsley, S.D.; Shea, T.P.; Benito, M.I.; Town, C.D.; Fujii, C.Y.
M; Koo, H; Moffat, K.S.; Cronin, L.A.; Shen, M.; VanAken, S.E.; Umayam, L.; Tallon, euss, D.; Nierman, W.C.; White, O.; Eisen, J.A.; Salzberg, S.L.; Fraser, C.M.; Venter euss, D.; Nierman, W.C.; White, O.; Eisen, J.A.; Salzberg, S.L.; Fraser, C.M.; Venter and the control of the con
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 39.6%; Score 208; DB 2; Length 115; Best Local Similarity 44.3%; Pred. No. 1.6e-13; Best Local Similarity 45.3%; Mismatches 37; Indels Matches 43; Conservative 15; Mismatches 37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: DNA
A; Residues: 1-380 < ROU>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Status: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Title: Sequence and analysis of chromosome 2 of the plant Arabidopsis thaliana. A;Reference number: A84420; MUID:20083487 A;Accession: B84737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Status: preliminary
A; Molecule type: DNA
A; Residues: 1-380 <STO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Cross-references:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Map position: 2
A;Introns: 55/3; 116/1; 161/3; 237/3; 287/3; 357/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Gene: At2g32760; F24L7.10
                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              59 MNSLRFLFEGORIADNHTPKELGMEEEDVIEVYQEQT 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MSDQEAKPSTEDLGDKKQGE--YIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVP 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 LNSIAFLEDGRRLRAEQTPDELDMEDGDEIDAMLHOT 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MSGATPNPTPNPEEDKKPNDAAHINLKVKGQDGNEVFFRIKRNTQLKKLMNAYCDRQSVD 60
                                                                                                                                          300 VTLKVKNOOGAEDLYKIGTHAHLKKLMSAYCTKRNLDYSSVREVYNGREIKAROTPAQLH 359
360 MEEEDEICMVMELGGG 375
                                                                                                                                                                                                                     22 IKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLRELFEGQRIADNHTPKELG 81
                                                                   82 MEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                                                                 28.0%; Score 147; DB 2;
1 Similarity 39.5%; Pred. No. 5.6e-07;
30; Conservative 15; Migmathing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GB:AE002093; NID:g2914697; PIDN:AAC04487.1; GSPDB:GN00139
                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2; Length 380;
                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                 Gaps
```

```
A:Map position: 1
C:Superfamily: polyubiquitin 2; ubiquitin homology
                                                                                                                                                                                                                                                                                                           R? Theologis, A.; Ecker, J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, O.; Alonso, Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K.; A; Hughes, B.; Huizar, L.

Nature 408, 816-820, 2000
A; Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E.; Kim, C. C.A.; Li, J.H.; Li, Y.; Lin, X.; Liu, S.X.; Liu, Z.A.; Luos, J.S.; Maiti, R.; Marziali, Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H.

A; A; M.; Mu, D.; Yu, G.; Fraser, C.M.; Venter, J.C.; Davis, R.W.

A; Title: Sequence and analysis of chromosome 1 of the plant Arabidopsis.
                                                                                                                                                                                        A;Cross-references: GB:AE005172; NID:g6692129; PIDN:AAF24594.1; GSPDB:GN00141
                                                                                                                                                                                                                                                        A; Molecule type: DNA
A; Residues: 1-156 <STO>
                                                                                                                                                                                                                                                                                                 A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Protein T19E23.13 [imported] - Arabidopsis thaliana
C:Species: Arabidopsis thaliana (mouse-ear cress)
C:Date: 02-Mar-2001 #sequence_revision 02-Mar-2001 #text_change 31-Mar-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Superfamily: polyubiquitin 2; ubiquitin homology C;Reywords: nucleus; polyprotein; protein degradatio F;1-76/Dranain: ubiquitin #status predicted <UB1>F;1-76/Dranain: ubiquitin homology <UBH1>F;77-152/Dranain: ubiquitin #status predicted <UB2>F;77-152/Domain: ubiquitin homology <UBH2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Introns: 31/3; 118/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Experimental source: ecotype Columbia C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R;Callis, J.; Carpenter, T.; Sun, C.W.; Vierstra, R.D.
Genetics 139, 921-939, 1955
A;Title: Structure and evolution of genes encoding polyubiquitin and ubiquitin-like prot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: EMBL:L05364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Molecule type: DNA
A; Residues: 1-154 <CAL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Polyubiquitin 2 - Arabidopsis thaliana
N;Alternate names: ubiquitin-like protein 7
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 10-Oct-1995 #sequence_revision 03-Nov-1995 #text_change 11-Apr-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 10
                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             134 DYAIEGGSVLHLVLALRGG 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      79 ELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19 GEYIKLKVIGODSSEIHFKVKMTTHLKKLKESYCOROGVPMNSLRFLFEGORIADNHTDK 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                76 GTMIKVKTL--TGKEIEIDIEPTDTIDRIKERVEEKEGIPPVQQRLIYAGKQLADDKTAK 133
                                      21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Loca!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              h 18.7%; Score 98; DB 2; Similarity 26.6%; Pred. No. 0.014;
                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
    18.7%; Score 98; DB 2; Length 156
26.6%; Pred. No. 0.014;
ative 21; Mismatches 35; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21; Mismatches
                                               DB 2; Length 156;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 2; Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             35; Indels
       2;
  Gaps
1;
    Matches
                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Дb
```

```
hypothetical protein [imported] - Arabidopsis thaliana C;Species: Arabidopsis thaliana (mouse-ear cress) C;Species: Gacasion: G86254 R;Theologis, Ar.; Change J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, O.; Alon Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, A;Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E.; Kim, R; Rooney, T.; Rowley, D.; Sakano, H. Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H. Ker, M.; Wu, D.; Yu, G.; Fraser, C.M.; Venter, J.C.; Davis, R.W. Sun, H.; Talio A;Reference and analysis of chromosome 1 of the plant Arabidopsis.

A:Status: nraiiminann,
A; Map position:
         A;Cross-references: EMBL:U28372; NID:g849170; PID:g849171; GSPDB:GN00004; MIPS:YDR363
                                                                             A; Molecule type: DNA
A; Residues: 1-456 <DUZ>
                                                                                                                submitted to the EMBL Data Library, June 1995 A; Description: The sequence of S. cerevisiae cosmid 9476.
                                                                                                                                                                                                    hypothetical protein YDR363w - yeast (Saccharomyces cerevisiae)
N;Alternate names: hypothetical protein D9476.1
C;Species: Saccharomyces cerevisiae
C;Date: 23-Feb-1996 #sequence_revision 01-Mar-1996 #text_change 23-Mar-2001
                                                                                                                                                                                                                                                                                                                                                               RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: GB:AE005172; NID:g3157940; PIDN:AAC17623.1; GSPDB:GN00141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: DNA
A; Residues: 1-78 <STO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Дb
                                                                                                                                                                                                                                                                                                                                                                                                              61 LERGSVLHLVLALRGG 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22 IKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELG 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                      82 MEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                               3 IKVKTLTE--KQIDIEIELTDTIERIKERIEEKEGIPPVHQRIVYTGKQLADDLTAKHYN 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 134 DYNIEGGSVLHLVLALRGG 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         79 ELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       76 GTMIKVKTL--TGKEIEIDIEPTDTIDRIKERVEEKBGIPPVQQRLIYAGKQLADDKTAK 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19 GEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPK 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18.3%; Score 96; DB. 25.0%; Pred. No. 0.01 ative 25; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 2; Length 78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1;
```

20 EYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNS-LRFLFEGQRIADNHTPK 78

24; Mismatches

28; Indels

Local Similarity les 19; Conserv

Conservative

17.8%; Score 93.5; DB 2; Length 456; 26.4%; Pred. No. 0.12;

밁

| ::: ::|||: :|: |: |: |: | |: | |: :::| |: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: : ||: :: ||: :: ||: : ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: :: ||: : ||: :: ||: :: ||: :: ||: :: ||: : ||: ||: : ||: ||: : : ||: : ||: : ||: : ||: : ||: : ||: : ||: : ||: ||: : ||: : ||: : ||: : ||: : ||: : ||: : ||: : ||: : ||: : ||: ||: : ||: : ||: ||: : ||: : ||: ||: : ||: : ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||:

```
A; Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, C.A.; Li, J.H.; Li, Y.; Lin, X.; Liu, S.X.; Liu, Z.A.; Luros, J.S.; Maiti, R. Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H. A; Authors: Salzberg, S.L.; Schwartz, J.R.; Shinn, P.; Southwick, A.M.; Sun, ker, M.; Wu, D.; Yu, G.; Fraser, C.M.; Venter, J.C.; Davis, R.W. A; Title: Sequence and analysis of chromosome 1 of the plant Arabidopsis. A; Reference number: A86141; MUID:21016719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R;Latreille, P.; Wamsley, P.
submitted to the EMBL Data Library, November 1998
A;Description: The sequence of C. elegans cosmid W07E6.
                                                      A; Reference number: A86141; A; Accession: A96580
                                                                                                                                                                                                                                                                                              R;Theologis, A.; Ecker, J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, O.; Alonso, Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K.; ansen, N.F.; Hughes, B.; Huizar, L. Nature 408, 816-820, 2000
                                                                                                                                                                                                                                                                                                                                                                                                                  hypothetical protein F1511.4 [imported] - Arabidopsis thaliana C;Species: Arabidopsis thaliana (mouse-ear cress) C;Species: 02-Mar-2001 #sequence_revision 02-Mar-2001 #text_change 31-Mar-2001 C;Accession: A96580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Map position: 2
A;Introns: 36/1; 132/2; 185/3; 309/1; 402/2; 464/1; 532/3; 598/3
C;Superfamily: Caenorhabditis elegans probable splicing factor Ceprp21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: EMBL:AF106576; PIDN:AAC78179.1; GSPDB:GN00020; CESP:W07E6.4
A;Experimental source: strain Bristol N2; clone W07E6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Reference number: Z21414
A; Accession: T33806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Molecule type: mRNA
A; Residues: 1-655 <SPI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Title: SWAP pre-mRNA splicing regulators are a novel, ancient protein family sharing A;Reference number: S50095; MUID:95061415
A;Accession: S50096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R;Spikes, D.A.; Kramer, J.; Bingham, P
Nucleic Acids Res. 22, 4510-4519, 1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              probable splicing factor Ceprp21 - Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 21-Jul-2000
C;Accession: S50096; T33806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Residues: 1-655 <LAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Cross-references: EMBL: U09415; NID: g498845; PIDN: AAA82164.1; PID: g498846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    607 QDRYGMPVGKQKLMSDGLFVKDNMSSAFYNLADRTAIYLQVKERGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              549 RPRTED--DLIPEADWLKKVNGAISLNVHLPQAPEHGMDGSIVQFTIQVTAPMSELKQQI 606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  442 DQDMEDEDMVDV 453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              52 CQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity les 26; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7 KPSTEDLGD-----KKQGEYIKLKV-----IGQDSSEIHFKVKMTTHLKKLKESY 51
preliminary
e type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ELGMEEEDVIEV 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16.9%; Score 88.5; DB 1; 24.5%; Pred. No. 0.55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P.M.; van Doren, K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels 17;
                                                                                                                                                                                                                                           S.; Khaykin, E.
.S.; Maiti, R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                 H.; Tallon,
                                                                                                                                                                                                                                                                    E.; Kim,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ψ
                                                                                                                                                                                                                                       Marziali
```

```
Вþ
                            Q
                                                          B
                                                                                     Q
                                                                                                                                                                                          A; Gene: F15I1.4
A; Map position:
                                                                                                                                                                                                                              C; Genetics:
                                                                                                                                                                                                                                           A;Cross-references: GB:AE005173; NID:g4587536; PIDN:AAD25767.1; GSPDB:GN00141
                                                                                                                                                                                                                                                          A; Residues: 1-144 <STO>
                                                                                                                      Matches
                                                                                                                                    Query Match
Best Local
                            39 KMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTG
                                                           28 EGKRIKLEV--EDSSNTIDLKIHGEPTRELVVDLSPTPDTGAIMMIFIKTLTGRTNTYEV 85
                                                                                      18 QGEYIKLKVIGQDSS----EIH-----
KGSDTIRELKAKHEEKEGIPVEQQRLIFQGRVLEDSKAISDYNIKHESTLHITLHQCG 143
                                                                                                                       23;
                                                                                                                                    Similarity
                                                                                                                       Conservative
                                                                                                                                    16.3%;
                                                                                                                      27;
                                                                                                                    Score 85.5; D
Pred. No. 0.21
27; Mismatches
                                                                                                                                    . 21;
                                                                                                                                                    DΒ
                                                                                                                                                  2;
                                                                                                                       27;
                                                                                                                                                 Length 144;
                                                                                        -----FKV 38
                                                                                                                      Indels
                                                                                                                      41;
                                                                                                                    Gaps
                             96
                                                                                                                      Ψ
```

Search completed: August 15, 2001, 17:16:54 Job time: 2360 sec

```
OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Title:
                                                                                                                                                                                                                                                                                                                                    Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                           Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                   pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.
                                                                                     Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-484-964-2
525
                                                                                                                                                                                                                                                                                                                                      Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         August 15, 2001, 17:11:49; Search time 57.57 Seconds (without alignments) 60.097 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MSDQEAKPSTEDLGDKKQGE.....MEEEDVIEVYQEQTGGHSTV 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   93435 seqs, 34255486 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BLOSUM62
 SwissProt_39:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                        14.5
14.5
                                                                                                                                                                                                                           44.2
42.6
42.3
41.6
15.4
15.4
                                                                                                                                                                                                                                                                                                                                       Length DB
 SM31_HUMAN
SM32_HUMAN
SM33_RAST
SM73_ORYSA
SM73_VEAST
UB11_DICDI
UB10_ACACA
NEDB_HUMAN
NEDB_MOUSE
UB10_STRPU
UB10_ACECL
UB10_ACECL
                                                                                                                            UBIQ_AGLNE
UBIQ_CAEEL
UBIQ_PHYIN
YJG9_YEAST
                                                                                                                                                                                                                                                                                               SM33_HUMAN
SMT3_CAEEL
SMT3_SCHPO
UBIQ_EIMBO
UBIQ_SOYBN
OS94_MOUSE
KPT2_HUMAN
KPT2_RAT
                                                UBIQ_COPCO
UBIQ_TETPY
UBIL_NPVOP
                                                                             UBIQ_YEAST
PYR5_ARATH
                                                                                                         UBIQ_CHLRE
                                                                                                UBIQ_TRYCK
                                                                                                                                                                                                                                                                                                                                                                    SUMMARIES
 p29595 mus musculu
p29595 mus musculu
p29595 mus musculu
p13117 neurospora
p23398 strongyloce
p42739 acetabulari
p42740 aglaothamni
p14792 caenorhabdi
p22589 phytophthor
p40362 saccharomyc
p14624 chlamydomon
p02248 homo sapien
p08565 trypanosoma
p04565 trypanosoma
p04586 arabidopsis
p19848 coprinus co
p20685 tetrahymena
Q05120 orgyia pseu
p46574 eimeria bov
p03993 glycine max
p48722 mus musculu
Q00537 homo sapien
035831 rattus norv
                                                                                                                                                                                                         p55854 homo sapien
p55855 homo sapien
p55852 arabidopsis
p55857 oryza sativ
Q12306 saccharomyc
Q16709 autographa
p08618 dictyosteli
p49634 acanthamoeb
Q15843 homo sapien
                                                                                                                                                                                                                                                                                      Q93068 homo sapien
p55853 caenorhabdi
013351 schizosacch
p55854 homo sapien
                                                                                                                                                                                                                                                                                                                                          Description
```

8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
70 69 69 68 68 68 68
13.3 13.3 13.1 13.1 13.1 13.1 13.0 13.0
76 153 76 76 352 476 380 380 352 355 353 373 373
UBIQ_EUPEU UCRP_BOVIN UBIQ_LEIMA UBIQ_TRYBB CLCE_PSEAE YS54_CAEEL KRT3_HUMAN MYG_ZALCA CLCE_PSESB BAG1_MOUSE BAG1_MOUSE DSKZ_YEAST NRG2_RAT
p23324 euplotes eu 002741 bos taurus 002550 leishmania p15174 trypanosoma 087612 pseudomonas 08963 caenorhabdi 007002 homo sapien p02161 zalophus ca 030847 pseudomonas 040739 mus musculu p48510 saccharomyc 035569 rattus norv

## ALIGNMENTS

RESULT

																_					<b>.</b>		. 77	<b>171</b>	<b>.</b>	ל וכ	1 721	0	0 (	200	ရ	DE E		멎	3 5	AC	IJ.	<u>s</u> 2
RA	R R R	R P.	Ŗ Ŗ	RA	R C	RP	Z P	RT	RA	RA	<b>%</b> ?	RP	RN	מאַ	RT	쯥	RA S	7 7	Šõ	RN	R.	R K	RA	RA	×	20 2	Z	×	റ	O W	z	(F) (F)	1 (%)	н ,		( )	١,	SM33 H
Matunis M.J., Coutavas E., Blobel G., atunis M.J., Coutavas E., Blobel G., $^{\prime\prime}A$ novel ubiquitin-like modification modulates the partitioning of	SEQUENCE FROM N.A.  SPECIES-Human; MFDLTRE-97133418; PubMed-8978815;	Cell 88:97-107(1997).	"; INVOIVED IN CALGECING	Gerace L., Melchio		SEQUENCE FROM N.A.	Genomics 35:2/1-2/3/13384	RAL	"UBL1, a human ubiquitin-like protein associating with human	, Colleaux o.c., roles	Company I C	SEQUENCE FROM N.A.	[3]	ogene 13:9	u combiex char is area abeca	inceraces when care	Solomon E., Freemont	87;	SEQUENCE FROM N.A.	[2]	Genomics 40:362-367(1997).		Hanaoka F., Brane C.;	Spek P.J., Pizzuci		SPECIES=Human; TISSUE=Brain;	TO TENOTE FROM N A	NCBI_TaxID=9606, 10090;	Catarrhin	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;	OR SMT3H3	(GAP MODIFYING PROTEIN 1) (GMP1) (SENTRIN).	IKE PROTEIN SMT3C (UBIQUITIN-HOMODOGE	æ	01-NOV-1997 (Rel. 35, Last sequence update)	5856;	ΨŲ	UMAN

```
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                             EMBL; X99586; CAA67898.1; --
EMBL; U61397; AAB40388.1; --
EMBL; U39784; AAC50733.1; --
EMBL; U67122; AAC50996.1; --
EMBL; U77722; AAB40390.1; --
EMBL; U83117; AAB39999.1; --
EMBL; AF033353; AAC39959.1; --
                                                                                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way endified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                             D-structure.
                                                                                                                                                                                                                                       PROSITE; PS50053; UBIQUITIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     J. Mol. Biol. 280:275-286(1998).
-!- FUNCTION: ASSOCIATES WITH RAD51/RAD52. INVOLVED IN TARGETING
                                                                                                                                                                                                                                                         InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RANGAP1 TO THE NUCLEAR PORE COMPLEX PROTEIN RANBP2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "The ubiquitin-homology gene PIC1: characterization of mouse (Pic1) and human (UBL1) genes and pseudogenes."; Genomics 47:92-100(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUMO-1."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bayer P., Arndt A., Metzger S., Mahajan R., Melchior F., Jaenicke R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SPECIES-Human
                 61 SLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Structure determination of the small ubiquitin-related modifier
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=98319859; PubMed=9654451;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRUCTURE BY NMR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Howe K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SPECIES=Mouse; STRAIN=ICR; MEDLINE=98126440; PubMed=9
         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chang H.M., Yeh E.T.H.;
"Protection against Fas/APO-1- and tumor necrosis factor-mediated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Okura T., Gong
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SPECIES=Human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=97064180; PubMed=8906799;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the Ran-GTPase-activating protein RanGAP1 between the cytosol and the
                                                                    1 MSDQEAKPSTEDLGDKKÓGEYIKLKVIGODSSEIHFKVKMTTHLKKLKESYCQRQGVPMN 60
                                                      1 MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMN 60
SLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV 101
                                                                                                                                                                                                                                                                    MGI:1197010; Ubl1.
                                                                                                                                                                                                                                                                                                     1A5R; 14-OCT-98.
                                                                                                                           100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     death by a novel protein, sentrin.";
numunol. 157:4277-4281(1996)
                                                                                                                                                                                                 101 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Biol. 135:1457-1470(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Williamson J., Boddy M.N., Sheer D., Freemont P.S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pore complex.
                                                                                                                                                                                                                                                           IPR000626;
                                                                                                                        Conservative
                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          L., Kamitani T., Wada T., Okura I., Wei C.F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE=Placenta
                                                                                                                                                                                                               101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PubMed=9465300;
                                                                                                                                                                                              11557 MW;
                                                                                                                                    99.4%;

    Mismatches

                                                                                                                                Score 522; DB 1.
Pred. No. 2e-44;
                                                                                                                                                                                        UBIQUITIN-LIKE. 89BE97D2D054FB33 CRC64;
                                                                                                                                            DB 1; Length 101;
                                                                                                                     0;
                                                                                                                   Indels
                                                                                                                0;
                                                                                                                Gaps
```

Q

뮰 QY

돲

```
AC AC DI
                                                                                                                    RESULT
                                                                                                                                                                  В
                                                                                                                                                                                              γ
                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                         Query Match
Best Local
          013351; 074186;
15-JUL-1998 (Rel. 36, Created)
01-OCT-2000 (Rel. 40, Last sequence update)
01-OCT-2000 (Rel. 40, Last annotation update)
UBIQUITIN-LIKE PROTEIN SMT3/PMT3
                                                                                    SMT3_SCHPO
                                                                                                   SCHPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              use by non-profit institutions as long as Its concern and for commercial modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; AF043701; AAB97577.1; -. WormPep; K12C11.2; CE18056. InterPro; IPR000626; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; X99600; CAA67914.1; -. EMBL; U94830; AAB67608.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE; PS50053; UBIQUITIN_2; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Wamsley P., Kramer J.;
Submitted (JAN-1998) to the EMBL/GenBank/DDBJ databases.
-!- SIMILARITY: TO UBIQUITIN. BELONGS TO THE SWT3 SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Choudhury B.K., Li S.S.;
"Identification and characterization of the SMT3 cDNA and gene from nematode Caenorhabditis elegans.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hanaoka F., Brahe C.; "SMT3A, a human homologue of the S. cerevisiae SMT3 gene, maps to chromosome 21qter and defines a novel gene family."; Genomics 40:362-367(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-BRISTOL N2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Biochem. Biophys. Res. Commun. 234:788-791(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        UBIQUITIN-LIKE PROTEIN SMT3 SMT3 OR K12C11.2.
Caenorhabditis elegans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=97318858; PubMed=9175795;
                                                                                                                                                        54 SLRFLFDGRRINDDDTPKTLEMEDDDVIEVYQEQLGG 90
                                                                                                                                                                                      61 SLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-97237059; PubMed-9119407;
Lapenta V., Chiurazzi P., van der Spek P.J., Pizzuti A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=6239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rhabditidae; Peloderinae; Caenorhabditis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P55853;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SMT3_CAEEL
                                                                                                                                                                                                                   1 MADDAAQ-----AGD--NAEYIKIKVVGQDSNEVHFRVKYGTSMAKLKKSYADRTGVAVN 53
                                                                                                                                                                                                                                               1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMN 60
                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                      91 AA; 10222 MW;
                                                                                                                                                                                                                                                                                        Conservative
                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                  53.4%; Score 280.5; DB 1 58.8%; Pred. No. 5.9e-21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nematoda; Chromadorea; Rhabditida; Rhabditoidea;
                                                                                                                                                                                                                                                                                     15; Mismatches
                                                                                                                                                                                                                                                                                                                                                                 UBIQUITIN-LIKE.
0894E99B6F7B37F5 CRC64;
                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                               117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     91 AA.
                                                                             Ā
                                                                                                                                                                                                                                                                                                                 DB 1;
                                                                                                                                                                                                                                                                                     18;
                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                 Length 91;
                                                                                                                                                                                                                                                                                7; Gaps
```

```
RESULT
SM31_HU
ID SN
AC PE
AC PE
DT 01
DT 11
DT 15
GN SN
                                                                                                                                                                                                 QΥ
                                                                                                                                                                       밁
                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                              δÃ
                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                               Query Match
Best Local :
SM31_HUMAN STANDARD; F
P5884;
01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequ
15-JUL-1998 (Rel. 36, Last anno
UBIQUITIN-LIKE PROTEIN SMT3A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SMT3 OR PMT3 OR SPBC365.06.
Schizosaccharomyces pombe (Fission yeast).
Eukaryota; Fungi; Ascomycota; Schizosaccha
                                                                                                             HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pelletier M.F., Dignard D.;
Submitted (AUG-1997) to the EMBL/GenBank/DDBJ databases.
-I- FUNCTION: REQUIRED FOR CHROMOSOME SEGRECATION WHERE IT MAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tanaka K., Nishide J., Okazaki K., Kato H., Niwa O., Nakagawa T.,
Matsuda H., Kawamukai M., Murakami Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A., FUNCTION, AND MEDLINE-20036821; PubMed-10567589;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Schizosaccharomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Schizosaccharomycetales; Schizosaccharomycetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; AB017187; BAA32595.1; -.
EMBL; AF019235; AAB71541.1; -.
EMBL; AL078627; CAB44758.1; ALT_FRAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Wood V., Rajandream M.A.,
Submitted (JUN-1999) to t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=4896;
                                                                                                                                                                                                                                                                                                                                                                             Nuclear protein.
DOMAIN 35
SEQUENCE 117 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 25-117 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mol. Cell. Biol. 19:8660-8672(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        telomere length and chromosome segregation.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Characterization of a fission yeast SUMO-1 homologue, pmt3p, required for multiple nuclear events, including the control of
                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR000626; -.
PROSITE; PS50053; UBIQUITIN_2; 1.
                                                                                                                                                                       76
                                                                                                                                                                                                     62 LRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                     25
                                                                                                                                                                                                                                                                   Ν
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FRAMESHIFT IN POSITION 29.
                                                                                                                                                                       LRFLVDGERIRPDQTPAELDMEDGDQIEAVLEQLGG 111
                                                                                                                                                                                                                                    SQQDVKPST----EHINLKVVGQDNNEVFFKIKKTTEFSKLMKIYCARQGKSMNS
                                                                                                                                                                                                                                                                 SDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNS 61
                                                                                                                                                                                                                                                                                                  50;
                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                           115 UI
12934 MW;
                                                                                                                                                                                                                                                                                                               46.68;
52.18;
                                Last sequence update)
Last annotation update)
                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Barrell B.G., Lelaure V., Galibert F.;
                                                                                                                                                                                                                                                                                                  12;
                                                                                                                                                                                                                                                                                                                                                                             UBIQUITIN-LIKE.
; 11C860EBEA172FD2 CRC64;
                                                                                                                                                                                                                                                                                                               Score 244.5; DB 1
Pred. No. 2.5e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Schizosaccharomycetes;
                                                                                                PRT;
                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUBCELLULAR LOCATION
                                                                                                103
                                                                                                                                                                                                                                                                                                                             DB 1;
                                                                                                                                                                                                                                                                                                                                 Length 117;
                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A
                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BΕ
                                                                                                                                                                                                                                                                                                   Gaps
```

```
Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 5
SM32_HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                           P55855;
01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-DEC-1998 (Rel. 37, Last annotation updat
UBIQUITIN-LIKE PROTEIN SMT3B (SENTRIN 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        chromosome 21qter and defines a novel gene family.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hanaoka F., Brahe C.;
"SMT3A, a human homologue of the S. cerevisiae SMT3 gene, maps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lapenta V., Chiurazzi P., van der Spek P.J., Pizzuti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PROSITE; PS50053; UBIQUITIN_2; 1.
DOMAIN 15 92 UBIQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MIM; 602231;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Genomics 40:362-367(1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=97237059; PubMed=9119407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                              SM32_HUMAN
                                                                                                                                           Lapenta V., Chiurazzi P., van der Spek P.J., Pizzuti A.,
Hanaoka F., Brahe C.;
"SMT3A, a human homologue of the S. cerevisiae SMT3 gene, maps
                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                              SMT3H2 OR SMT3B
                           Qi F., Berry E.S.;
Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases
                                                             SPECIES-Bovine;
                                                                               SEQUENCE FROM N.A.
                                                                                                            chromosome 21qter and defines a novel gene family."; Genomics 40:362-367(1997).
                                                                                                                                                                                             SPECIES=Human; TISSUE=Brain; MEDLINE=97237059; PubMed=9119407;
                                                                                                                                                                                                                                                           NCBI_TaxID=9606, 9913;
                                                                                                                                                                                                                                                                                                           Homo sapiens (Human), and Bos taurus (Bovine)
               - !- SIMILARITY: TO UBIQUITIN. BELONGS TO THE SMT3 SUBFAMILY
                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             56 QIRFRFDGQPINETDTPAQLRMEDEDTIDVFQQQTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 SLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MSEEKPKE-----GVKTENDHINLKVAGQDGSVVQFKIKRHTSLSKLMKAYCERQGLSMR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIMILARITY: TO UBIQUITIN. BELONGS TO THE SMT3 SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       X99584; CAA67896.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IPR000626;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           103 AA; 11654 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                               TISSUE=Endometrium;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        45.6%; Score 239.5; DB 1; 47.4%; Pred. No. 6.6e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           UBIQUITIN-LIKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E335318AC6066187 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                               update)
                                                                                                                                                                                                                                                                                                                                                                                                                                 95
                                                                                                                                                                                                                                                                                                                                                                                                                                 ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1;
```

```
Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SET DE RESERVE COCCO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Loc
Matches
      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                    use by non-profit institutions as long as its content is in no modified and this statement is not removed. Usage by and for commer
                                                                                                                                                                     entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its
                                                                                                       InterPro; IPR000626; -. PROSITE; PS50053; UBIQUITIN_2; 1.
                                                                                                                                           EMBL; X99609; CAA67923.1; -.
                                                                                                                                                                                                                                                                                         01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUL-1998 (Rel. 36, Last annotation update)
                                                                                                                                                                                                                                                                                                                                           Lapenta V., Chiurazzi P., van der Spek P.J., Pizzuti A.,
Hanaoka F., Brahe C.;
"SMT3A, a human homologue of the S. cerevisiae SMT3 gene, maps
                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. MEDLINE=97237059; PubMed=9119407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Arabidopsis thaliana (Mouse-ear cress).

Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;

Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II;
                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=3702
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Brassicales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         UBIQUITIN-LIKE PROTEIN SMT3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMT3_ARATH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ARATH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR000626; -.
PROSITE; PS50053; UBIQUITIN_2; 1.
DOMAIN 16 95 UBIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MIM; 603042;
                   Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              57 QIRFRFDGQPINETDTPAQLEMEDEDTIDVFQQQTGG 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 SLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MADEKPKEGVK----TENNDHINLKVAGQDGSVVQFKIKRHTPLSKLMKAYCERQGLSMR 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMN 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                X99585; CAA67897.1; -. U89439; AAB49682.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    95 AA; 10871 MW;
                                                                                 104 AA;
    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      44.28;
                                                                                 11654 MW;
                42.6%; Score 223.5;
51.2%; Pred. No. 2.4
    14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21; Mismatches
                                                                                               UBIQUITIN-LIKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 232; DB 1;
Pred. No. 3.2e-16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   UBIQUITIN-LIKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   F8F0426849BEF08B CRC64;
                                                                             CDA68401C1E8028D CRC64;
    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    104
                .4e-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A
                                DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28;
                                1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 95;
                                Length 104;
 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
 ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4.
Gaps
                                                                                                                                                                                                         commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1;
```

```
SMT3_
ID
AC
DT
DT
DT
DT
DE
GN
OC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вр
                                                                                                                                                                                                                                                                             δÃ
                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                  QΥ
                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 7
SMT3_ORYSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SMT3_ORYSA STANDARD;
P58857;
01-NOV-1997 (Rel. 35, Created
01-NOV-1997 (Rel. 35, Last se
15-JUL-1998 (Rel. 36, Last an
UBIQUITIN-LIKE PROTEIN SMT3.
                                                                        012306;
01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-JUL-1998 (Rel. 36, Last annotation updat
 Eukaryota; Fung1; Ascomycota; Saccharomycotina; Saccharomycetes;
Saccharomycetales; Saccharomycetaceae; Saccharomyces.
                                                  UBIQUITIN-LIKE PROTEIN SMT3.
SMT3 OR YDR510W OR D9719.15.
                                                                                                                                                                            YEAST
                                  Saccharomyces cerevisiae (Baker's yeast).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE; PS50053; UBIQUITIN_2; 1.
DOMAIN 19 96 UBIQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                           SMT3_YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; X99608; CAA67922.1; -. InterPro; IPR000626; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Genomics 40:362-367(1997).
-!- SIMILARITY: TO UBIQUITIN. BELONGS TO THE SMT3 SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                chromosome 21qter and defines a novel gene family.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hanaoka F., Brahe C.; "SMT3A, a human homologue of the S. cerevisiae SMT3 gene,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE=97237059; PubMed=9119407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Ehrhartoideae; Oryzeae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lapenta V., Chiurazzi P., van der Spek P.J., Pizzuti A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=4530;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Oryza sativa (Rice).
                                                                                                                                                                                                                                             62 AFLFDGRRLRGEQTPDELEMEDGDEIDAMLHQTGG
                                                                                                                                                                                                                                                                             63 RFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                   σ
                                                                                                                                                                                                                                                                                                                                              3 DQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSL 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    68 RAEQTPDELDMEDGDEIDAMLHQTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         æ
                                                                                                                                                                                                                                                                                                              EEDKKPA----GGEGGGAHINLKVKGQDGNEVFFRIKRSTQLKKLMNAYCDRQSVDMNAI 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DKKOGE---YIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFBGQRI 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DKKPGDGGAHINLKVKGQDGNEVFFRIKRSTQLKKLMNAYCDRQSVDMNSIAFLFDGRRL 67
                                                                                                                                                                                                                                                                                                                                                                                      43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100 AA; 10928 MW;
                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                 42.3%; Score 222; DB 1;
45.3%; Pred. No. 3.2e-15
ative 19; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      UBIQUITIN-LIKE.
                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      624E44BC94C00268 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    93
                                                                                                                                                         101
                                                                                     update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100 AA
Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       There are no restrictions on ng as its content is in no
                                                                                                                                                         A
                                                                                                                                                                                                                                             96
                                                                                                                                                                                                                                                                                                                                                                                                                 Length 100
                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  maps
                                                                                                                                                                                                                                                                                                                                                                                 4.
                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6
```

```
Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ğ
밁
                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN=YPH1/YNN214;
Meluh P.B., Koshlan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (AUG-1995) to the EMBL/GenBank/DDBJ databases.
-I- FUNCTION: NOT KNOWN; SUPPRESSOR OF MIF2 MUTATIONS.
-I- SIMILARITY: TO UBIQUITIN. BELONGS TO THE SMT3 SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the European Bioinformatics Institute. The use by non-profit institutions as long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Dietrich F.S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (JUL-1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; U27233; AAB01675.1; -. EMBL; U33057; AAB64951.1; -. SGD; S0002918; SMT3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=4932
                                                                                                                                                                                                                                                                                                                          UBIL_NPVAC STANDARD; PRT; 77 AA P16709; 01-AUG-1990 (Rel. 15, Created) 01-NOV-1995 (Rel. 32, Last sequence update) 01-NOV-1997 (Rel. 35, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                 NPVAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSITE; PS50053; UBIQUITIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
                                                  Guarino L.A., Summers M.D.;
"Functional mapping of a trans-activating gene required for expression of a baculovirus delayed-early gene.";
                                                                                                                                                                                                                                                     Viruses; dsDNA viruses, Nucleopolyhedrovirus.
                                                                                                                                                                                                                                                                             Autographa californica nuclear polyhedrosis virus (ACMNPV).
                                                                                                                                                                                                                                                                                                            UBIQUITIN-LIKE PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   [nterPro;
                                                                                               MEDLINE=86115404; PubMed=3944847;
                                                                                                                                                       Proc. Natl. Acad. Sci.
                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                            MEDLINE=90115886; PubMed=2153300;
                                                                                                                                                                                                                                      NCBI_TaxID=46015
              SEQUENCE FROM N.A
                                                                                                                                                     Identification of a viral gene encoding a ubiquitin-like protein."; Proc. Natl. Acad. Sci. U.S.A. 87:409-413(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                      58 KEMDSLRFLYDGIRIQADQTPEDLDMEDNDIIEAHREQIGG 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               57 VPMNSLRFLFEGORIADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MSDSEVNQEAKPEVKP--EVKPETHINLKV-SDGSSEIFFKIKKTTPLRRLMEAFAKRQG 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MSD----QEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQROG 56
                                           Virol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SWISS-PROT entry is copyright. It is produced through a collaboration een the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  non-profit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           101 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IPR000626; -
                                           57:563-571(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Koshland D.E.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11597 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   41.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                       no RNA stage; Baculoviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 218.5; DB 1; Pred. No. 7.2e-15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        UBIQUITIN-LIKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A2790DE7F315E1A7 CRC64;
                                                                                                                                                                                                                                                                                                                           update)
                                                                                                                                                                                                                                                                                                                                                                                     77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  restrictions on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ω
```

```
REAL PROPERTY OF THE PROPERTY 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                γ
   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VITALOGY 202:586-605(1994).

-I- FUNCTION: UBIQUITIN MAY PLAY A ROLE IN VIRAL LIFE CYCLES, OR PUNCTION: UBIGUITIN MAY PLAY A ROLE IN VIRAL LIFE CYCLES, OR INCREMENT OF SEVERAL DIFFERENT PLANT AND ANIMAL VIRUSES. PROTEIN SUBUNITS OF SEVERAL DIFFERENT PLANT AND ANIMAL VIRUSES.
-I- SIMILARITY: BELONGS TO THE UBIQUITIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=94303173; PubMed=8030224;
Ayres M.D., Howard S.C., Kuzio J., Lopez-Ferber M., Possee R.D.;
"The complete DNA sequence of Autographa callifornica nuclear polyhedrosis virus.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; M30305; AAA46751.1; ...
EMBL; M37122; AAA46685.1; ...
EMBL; L22858; AAA6665.1; ...
PIR; A34813; UQNVAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nuclear protein; Late protein.
SITE 48 48 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE; PS00299; UBIQUITIN_1; 1. PROSITE; PS50053; UBIQUITIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF00240; ubiquitin; 1
PRINTS; PR00348; UBIQUITIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HSSP; P02248; 1AAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-AUG-1988 (Rel. 08, Created)
01-AUG-1988 (Rel. 08, Last seq
01-NOV-1991 (Rel. 20, Last ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR000626; -
                                                                                                                                                                                                                                                       terminal tail and identification of the protein using an anti-peptide antibody. "";
                                                                                                                                                                                                                                                                                                                                                                Mueller-Taubenberger A., Westphal M., Jaeger E., Noegel A.,
                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. MEDLINE=88152253; PubMed=2831095;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dictyostelium discoideum (Slime mold).
Eukaryota; Mycetozoa; Dictyosteliida; Dictyostelium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    UBIQUITIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P08618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  UBIQ_DICDI
                                                      "Molecular organization of developmentally regulated Dictyostelium discoideum ubiquitin cDNAs.";
                                                                                                                                                                                                                                                                                                                                           Gerisch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=44689;
Biochemistry 28:5226-5231(1989).
                                                                                                      Ohmachi T., Giorda R., Shaw D.R., Ennis H.L.
                                                                                                                                       MEDLINE=89352609; PubMed=2548604;
                                                                                                                                                                                                                                                                                                       "Complete cDNA sequence of a Dictyostelium ubiquitin with a carboxy-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                47 LKESYCOROGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGH 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26 LKQKIADKEGVPVDQQRLIFAGKQLEDSKTMADYNIQKESTLHMVLRLRGGY 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       76 76
20 20
77 AA; 8653 MW;
                                                                                                                                                                                                                                  229:273-278(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15.4%;
25.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 81; DB 1; Pred. No. 0.13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A -> E (IN REF. 1).
EF9C11D902ABC35A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MULTIUBIQUITIN ADDUCTS.
CONJUGATION TO ACCEPTOR PROTEINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NECESSARY FOR BRANCHED-CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -> E (IN REF. 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 77;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
В
                                                                 ρy
                                                                                                                                                                                                                                                        RANGE TO THE PROPERTY OF THE P
                                                                                                                          Matches
                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; X07210; CAA30183.1; ALT_TERM.
EMBL; M1966; AAA33261.1; ALT_TERM.
EMBL; M19491; AAA33263.1; ALT_TERM.
EMBL; M19492; AAA33270.1; ALT_TERM.
EMBL; M23748; AAA33262.1; ALT_TERM.
EMBL; M23749; AAA33262.1; ALT_TERM.
EMBL; M23750; AAA33263.1; ALT_TERM.
EMBL; M23751; AAA33265.1; ALT_TERM.
EMBL; M23752; AAA33265.1; ALT_TERM.
EMBL; M23753; AAA33266.1; ALT_TERM.
EMBL; M23754; AAA33268.1; ALT_TERM.
EMBL; M23754; AAA33268.1; ALT_TERM.
EMBL; M23754; AAA33268.1; ALT_TERM.
EMBL; X04702; CAA28408.1; ALT_TERM.
                                                                                                                                                                                                                                                                                BINDING
VARIANT
                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF00240; ubiquitin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIR;
                                                                                                                                                                                                                                                                                                                                                                                     Nuclear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DictyDb; DD05001; ubqA.
InterPro; IPR000626; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Dictyostelium discoideum." FEBS Lett. 209:92-96(1986)
10 GKTITLEVEGSD-----NIENVKAKIQDKEGIPPDQQRLIFAGKQLEDGRTLS 57
                                                 19 GEYIKLKVIGODSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPK 78
                                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Westphal M., Mueller-Taubenberg A., Noegel A., Gerisch G., "Transcript regulation and carboxyterminal extension of ubiquitin in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-AX2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF 13-76 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ubiquitin genes."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Structure of two developmentally regulated Dictyostelium discoideum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=87257921; PubMed=3037345; Giorda R., Ennis H.L.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; B34080;
; C34080;
; D34080;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MISCELLANEOUS: UBIQUITIN IS SYNTHESIZED AS A POLYUBIQUITIN PRECURSOR WITH EXACT HEAD TO TAIL REPEATS. SOME UBIQUITIN GENES CONTAIN A SINGLE COPY OF UBIQUITIN FUSED TO A RIBOSOMAL PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUBCELLULAR LOCATION: NUCLEAR AND CYTOPLASMIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FUNCTION: INVOLVED IN THE ATP-DEPENDENT SELECTIVE DEGRADATION CELLULAR PROTEINS, THE MAINTENANCE OF CHROMATIN STRUCTURE, THI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  E34080;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REGULATION OF GENE EXPRESSION, THE STRESS RESPONSE, AND RIBOSOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A27806;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S00357;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BIOGENESIS.
                                                                                                                       l Similarity
17; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cell. Biol. 7:2097-2103(1987).
                                                                                                                                                                                                                                                                                                                                                                             protein; Polyprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         PR00348; UBIQUITIN
                                                                                                                                                                                                                                                                                                                                                                                                PS00299; UBIQUITIN_1; 1. PS50053; UBIQUITIN_2; 1.
                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           UQDOR7.
A27806.
B27806.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  UQDOR
                                                                                                                                                                                                                                                                                   76
11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         D34080.
                                                                                                                                                                                                                                                     AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C34080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B34080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A34080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1AAR.
                                                                                                                                                                                                                                                  8538 MW;
                                                                                                                                        15.2%;
21.5%;
                                                                                                                                                                                                                                                                                      76
11
                                                                                                                  20;
                                                                                                                                        Score 80;
Pred. No.
                                                                                                                                                                                                                                                          MULTIUBIQUITIN ADDUCTS.
CONJUGATION TO ACCEPTOR PROTEINS.
K -> N (IN SOME CLONES REPEATS).
                                                                                                                                                                                                                                       6427383968EA8A84 CRC64;
                                                                                                                                                                                                                                                                                                                                            NECESSARY FOR BRANCHED-CHAIN
                                                                                                               Mismatches
                                                                                                                                        0.16;
                                                                                                                                                              DB 1;
                                                                                                               30;
                                                                                                                                                              Length 76;
                                                                                                             Indels
                                                                                                          12;
                                                                                                          Gaps
                                                                                                       ۲,
```

```
NED8_
                                                                                                                                                                     Qy
                                                                                                                                                                                                                                                                                                                               RESULT 12
                                                                                                                                             B
                                                                                                                                                                                                    B
                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         UBIQ_ACACA
                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                       Query Match
Best Local
    Q15843;
01-NOV-1997 (Rel. 3
01-NOV-1997 (Rel. 3
01-OCT-2000 (Rel. 4
                                                                NED8_HUMAN
                                                                                 HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sequence.";
Biochim. Biophys. Acta 1218:109-111(1994).

-i- FUNCTION: INVOLVED IN THE ATP-DEPRINDENT SELECTIVE DEGRADATION OF CELLULAR PROTEINS, THE MAINTENANCE OF CHROMATIN STRUCTURE, THE REGULATION OF GENE EXPRESSION, THE STRESS RESPONSE, AND RIBOSOME
                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                               BINDING
                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE; PS00299; UBIQUITIN_1; 1. PROSITE; PS50053; UBIQUITIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                      Nuclear protein; Polyprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                 PRINTS; PR00348; UBIQUITIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR000626; -. Pfam; PF00240; ubiquitin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; X75628; CAA53293.1; ALT_TERM. HSSP; P02248; 1AAR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Enthe European Bioinformatics Institute. There are no restruse by non-profit institutions as long as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ahn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-FEB-1996 (Rel.
01-FEB-1996 (Rel.
01-FEB-1996 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "An Acanthamoeba ubiquitin-fusion protein; cDNA and deduced protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=94250685; PubMed=8193157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      UBIQUITIN
                                                                                                                                                                     94 QTGG 97
                                                                                                                                                                                         13 ITLEVESSDTIENVKQKIQDKEGIPPDQQRLIFAGKQLEDGRTLADYNIQKESTLHLVLR 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=5755;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Acanthamoeba castellanii (Amoeba)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           UBIQ_ACACA
                                                                                                                                        73 LRGG 76
                                                                                                                                                                                                                     34 IHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQE 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                58 DYNIQKESTLHLVLRLRGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MISCELLANEOUS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ITS C-TERMINAL EXTENSION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBCELLULAR LOCATION: NUCLEAR AND CYTOPLASMIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ELGMEEEDVIEVYQEQTGG
                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Henney H.R.;
                                                                                                                                                                                                                                                                                                                               76 AA;
                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Acanthamoebidae; Acanthamoeba
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (Rel. 33, Created)
(Rel. 33, Last sequence update)
(Rel. 33, Last annotation update)
                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
35, Created)
35, Last sequence update)
40, Last annotation update)
                                                                                                                                                                                                                                                                                                                               8596 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             THIS PROTEIN IS SYNTHESIZED WITH RIBOSOMAL CEP52 AS
                                                                                                                                                                                                                                                                                                                                               76
                                                                                                                                                                                                                                                                    14.5%; Score 76; DB 1; Length 76; 20.3%; Pred. No. 0.39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97
                                                                                                                                                                                                                                                        21;
                                                                                                                                                                                                                                                                                                                            D84480E07D1E9B52 CRC64;
                                                                                                                                                                                                                                                                                                                                      MULTIUBIQUITIN ADDUCTS.
CONJUGATION TO ACCEPTOR PROTEINS
                                                                                                                                                                                                                                                                                                                                                                   NECESSARY FOR BRANCHED-CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                       Mismatches
                                                              81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        76 AA.
                                                             A
                                                                                                                                                                                                                                                                   .39;
                                                                                                                                                                                                                                                   30;
                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      restrictions on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a collaboration
                                                                                                                                                                                                                                                   ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      outstation
                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                  0;
```

```
밁
                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                            QΥ
NED8
                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Whitby F.G., Xia G., Pickart C.M., Hill C.P.; "Crystal structure of the human ubiquitin-like protein NEDD8 interactions with ubiquitin pathway enzymes."; J. Biol. Chem. 273:34983-34991(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kato S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        UBIQUITIN-LIKE PROTEIN NEDD8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-99074275; PubMed-9857030;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (DEC-1993) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rissue-fibrosarcoma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF00240; ubiquitin; 1.
PRINTS; PR00348; UBIQUITIN.
PROSITE; PS00299; UBIQUITIN 1; 1.
PROSITE; PS50053; UBIQUITIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; D23662; BAA04889.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          lomo sapiens (Human)
                                                                                                                                                                                         MOUSE
                                                                                   01-APR-1993 (Rel. 25, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
15-DEC-1998 (Rel. 37, Last annotation update)
UBIQUITIN-LIKE PROTEIN NEDD8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3D-structure.
                Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                       P29595;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        [nterPro; IPR000626; -
NCBI_TaxID=10090;
                                                  Mus musculus (Mouse)
                                                                    NEDD8 OR NEDD-8
                                                                                                                                                                         NED8_MOUSE
                                                                                                                                                                                                                                                                                                                                                              22 IKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELG 81
                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                           82 MEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BIO1. Chem. 273:34983-34991(1998).

FUNCTION: ACTIVATED BY AN E1-LIKE COMPLEX, CONSISTING OF APP-B1 AND UBA3 AND THEN LINKED TO THE E2-LIKE ENZYME, UBC12. THE MAJOR TARGET PROTEIN MODIFIED BY NEDD8 IS CULLIN-4A.

FUNCTION: MAY PLAY AN IMPORTANT ROLE DURING THE EMBRYONIC DEVELOPMENT AND DIFFERENTIATION OF THE CENTRAL NERVOUS SYSTEM. MAY
                                                                                                                                                                                                                                                                                                                           3 IKVKTL--TGKEIEIDIEPTDKVERIKERVEEKEGIPPQQQRLIYSGKQMNDEKTAADYK 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIMILARITY).
SIMILARITY: BELONGS TO THE UBIQUITIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PLAY AN ESSENTIAL ROLE IN EUKARYOTIC CELLULAR METABOLISM (BY
                                                                                                                                                                                                                                                          ILGGSVLHLVLALRGG 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          23-FEB-99.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81 AA; 9072 MW; DC2FE102BE4725D2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                  14.5%;
                   Rodentia;
                                    Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                  21; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                Score 76;
                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No. 0.42;
                                                                                                                                                                           PRT;
                                    Craniata; Vertebrata; Euteleostomi;
                   Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                           81
                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1; Length 81;
                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                     36;
                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                       2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and
                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
```

```
Вb
                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                      ρ
                                                                                                                                                                                                                                                                                                                                                                   ρy
 UBIQ_NEUCR
                                                                                                                                                                                                                            RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kumar S., Tomooka Y., Noda M.; "Identification of a set of genes with developmentally down-regulated expression in the mouse brain.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Cloning of a cDNA which encodes a novel ubiquitin-like protein.";
Biochem. Biophys. Res. Commun. 195:393-399(1993),
FUNCTION: ACTIVATED BY AN EXECUTION OF THE ENTRY OF THE CENTRAL NERVOUS SYSTEM. MAY
PLAY AN ESSENTIAL ROLE IN EUKARYOTIC CELLULAR METABOLISM.
-: TISSUE SPECIFICITY: UBIQUITOUS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Biochem. Biophys. Res. Commun. 185:1155-1161(1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=92328780; PubMed=1378265;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE=Brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=93371434; PubMed=8395831;
                                                                                                                                                                          UBIO_NEUCR
P13117;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REVISIONS, SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRINTS; PRO0348; UBIQUITIN.
PROSITE; PRO0299; UBIQUITIN_1; 1.
PROSITE; PRO0299; UBIQUITIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; D10918; BAA01719.1; -. HSSP; P02248; 1AAR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rissuE=Brain
                                                                                                                         01-JAN-1990 (Rel.
01-JAN-1990 (Rel.
30-MAY-2000 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam; PF00240; ubiquitin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MGD; MGI:97301; Nedd8.
                                                                             Neurospora crassa.
Eukaryota; Fungi; Ascomycota; Pezizomycotina;
                                                                                                                UBIQUITIN
STRAIN-ST. LAWRENCE 74 / SL
                  SEQUENCE FROM N.A.
                                               NCBI_TaxID=5141;
                                                                 Sordariales; Sordariaceae;
                                                                                                                                                                                                                                                                                                                                                                     22 IKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELG 81
                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
nes 17; Conserv
                                                                                                                                                                                                                                                                           61 ILGGSVLHLVLALRGG
                                                                                                                                                                                                                                                                                                          82 MEEEDVIEVYQEQTGG
                                                                                                                                                                                                                                                                                                                                        ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIMILARITY: BELONGS TO THE UBIQUITIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEVELOPMENTAL STAGE: DOWN-REGULATED DURING THE DEVELOPMENT
                                                                                                                                                                                                                                                                                                                                      IKVKTL--TGKEIEIDIEPTDKVERIKERVEEKEGIPPQQQRLIYSGKQMNDEKTAADYK 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PS50053; UBIQUITIN_2; 1.
; 81 AA; 8972 MW; DC339102BE4725D2 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IPR000626;
                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                              STANDARD;
                                                                                                                              13, Created)13, Last sequence update)39, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                       14.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Noda M.;
                                                                                                                                                                                                                                                                                                                                                                                                        21;
                                                                 Neurospora
                                                                                                                                                                                                                                                                                                                                                                                                                     Score 76; DB 1
Pred. No. 0.42;
                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                 76 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                           36;
                                                                                     sordariomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 81;
                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
```

```
UBIQ_STRPU
ID UBIQ_
                                                                                   밁
                                                                                                           Ş
                                                                                                                                              밁
                                                                                                                                                                           Qγ
                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                           Query Match
Best Local :
                                                                                                                                                                                                          Matches
    UBIQ_STRPU
                                                                                                                                                                                                                                                                                      BINDING
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                         PRINTS; PR00348; UBIQUITIN...; 1. PROSITE; PS00299; UBIQUITIN...; 1. PROSITE; PS50053; UBIQUITIN...2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; X13140; CAA31530.1; ALT_TERM.
EMBL; U01220; AAA56880.1; ALT_TERM.
EMBL; U01221; AAA03351.1; ALT_TERM.
PIR; S05323; UQNC.
                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF00240; ubiquitin; 1.
                                                                                                                                                                                                                                                                                                                                Auclear protein; Polyprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tarawneh K.A., Anumula K.R., Free S.J.;
"The isolation and characterization of a Neurospora crassa gene (ubi::crp-6) encoding a ubiquitin-40S ribosomal protein fusion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN=74-OR23-1A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "The cDNA sequence and expression of an ubiquitin-tail gene fusion in Neurospora crassa.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Ubiquitin expression in Neurospora crassa: cloning and sequencing of a polyubiquitin gene.";
Nucleic Acids Res. 17:6153-6165(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=94374698; PubMed=8088539;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gene 102:133-137(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Taccioli G.E., Grotewold E., Aisemberg G.O., Judewicz D.N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=91323720; PubMed=1650731;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A
                                                                                                             94
                                                                                                                                             13
                                                                                                                                                                 34 IHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQE 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=89366647; PubMed=2549509;
                                                                               73 LRGG 76
                                                                                                                                                                                                                       Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Taccioli G.E., Grotewold
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUBCELLUAR LOCATION: NUCLEAR AND CYTOPLASMIC.
MISCELLANEOUS: UBLQUITIN IS SYNTHESIZED AS A POLYUBIQUITIN
PRECURSOR WITH 4 EXACT HEAD TO TAIL REPEATS. THERE IS A FINAL
AMINO-ACID (GLN) AFTER THE LAST REPEAT. SOME UBLQUITIN GENES
CONTAIN A SINGLE COPY OF UBLQUITIN FUSED TO A RIBOSOMAL PROTEIN.
                                                                                                               QTGG 97
                                                                                                                                   ITLEVESSDTIDNVKQKIQDKEGIPPDQQRLIFAGKQLEDGRTLSDYNIQKESTLHLVLR 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FUNCTION: INVOLVED IN THE ATP-DEPENDENT SELECTIVE DEGRADATION OF CELLULAR PROTEINS, THE MAINTENANCE OF CHROMATIN STRUCTURE, THE REGULATION OF GENE EXPRESSION, THE STRESS RESPONSE, AND RIBOSOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BIOGENESIS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     147:137-140(1994)
                                                                                                                                                                                                                                                                                                                                                                                                                                            P02248; 1AAR.
                                                                                                                                                                                                                                                                                                                                                                                                                           IPR000626; -
                                                                                                                                                                                                                                                                                     76
                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LAWRENCE 74 / SL
                                                                                                                                                                                                                                                                                   76
6 AA;
STANDARD;
                                                                                                                                                                                                                                                                                   76
8598 MW;
                                                                                                                                                                                                                      14.3%;
20.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E., Aisemberg G.O., Judewicz N.D.;
                                                                                                                                                                                                       20;
                                                                                                                                                                                                                                                                           NECESSARY FOR BRANCHED-CHAIN MULTIUBIQUITIN ADDUCTS.
CONJUGATION TO ACCEPTOR PROTEINS.
994480FE7D38403E CRC64;
                                                                                                                                                                                                                    Pred. No. 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        74 / ORS 6A
 PRT;
                                                                                                                                                                                                       Mismatches
76
                                                                                                                                                                                                                    DB 1;
0.49;
A
                                                                                                                                                                                                   31;
                                                                                                                                                                                                                                 Length 76
                                                                                                                                                                                                   Indels
                                                                                                                                                                                                  0,
                                                                                                                                                                                              Gaps
                                                                                                                                                                                                0,
```

٠ ږ

Job time:

Search completed: August 15,

2001,

17:18:03

```
QΥ
                                                                  Дb
                                                                                               Qy
                                                                                                                                Matches
                                                                                                                                                                Query Match
                                                                                                                                               Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    P23398;
01-NOV-1991 (Rel. 2
01-NOV-1991 (Rel. 2
01-NOV-1991 (Rel. 2
                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                            BINDING
                                                                                                                                                                                                                                                                                    PROSITE; PS00299; UBIQUITIN_1; 1. PROSITE; PS50053; UBIQUITIN_2; 1.
                                                                                                                                                                                                                                                                                                                      Pfam; PF00240; ubiquitin; 1 PRINTS; PR00348; UBIQUITIN.
                                                                                                                                                                                                                                                                        Nuclear protein; Polyprotein.
                                                                                                                                                                                                                                                                                                                                                                        EMBL; M61772; AAA30082.1; ALT_SEQ. HSSP; P02248; 1AAR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     urchin embryos.";

Dev. Biol. 145:255-265(1991).

-i- FUNCTION: INVOLVED IN THE ATP-DEPENDENT SELECTIVE DEGRADATION OF CELLULAR PROTEINS, THE MAINTENANCE OF CHROMATIN STRUCTURE, THE
                                                                                                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nemer M., Rondinelli E., Infante D., Polyubiquitin RNA characteristics a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=91250006; PubMed=1645680;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Strongylocentrotus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Echinoidea; Euechinoidea; Echinacea; Echinoida; Strongylocentrotidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Strongylocentrotus purpuratus (Purple sea urchin). Eukaryota; Metazoa; Echinodermata; Eleutherozoa; E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           UBIQUITIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=7668;
58 DYNIQKESTLHLVLRLRGG
                                                        10 GKTITLEVEPSDS------IENVKAKIODKEGIPPDQQRLIFAGKQLEDGRTLS 57
                                                                                       19 GEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPK 78
                              79 ELGMEEEDVIEVYQEQTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MISCELLANEOUS: UBIQUITIN IS SYNTHESIZED AS A POLYUBIQUITIN PRECURSOR WITH EXACT HEAD TO TAIL REPEATS, THE NUMBER OF REPEAT DIFFER BETWEEN SPECIES. THERE ARE ESTIMATED TO BE APPROXIMATELY IN PURPLE SEA URCHIN. THERE IS ONE ADDITIONAL AMINO ACID (GLN) AFTER THE LAST REPEAT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SUBCELLULAR LOCATION: NUCLEAR AND CYTOPLASMIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BIOGENESIS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REGULATION OF GENE EXPRESSION, THE STRESS RESPONSE,
                                                                                                                                17;
                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                         IPR000626; -
                                                                                                                                                                                                            76 AA;
                                                                                                                              Conservative
                                                                                                                                                                                                                            76
                                                                                                                                                                                                         76
8551 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20, Created)
20, Last sequence update)
20, Last annotation update)
                                                                                                                                          14.3%;
21.5%;
                                                                                                                            19;
                                                                                                                                                                                                       MULTIUBIQUITIN ADDUCTS.
CONJUGATION TO ACCEPTOR PROTEINS
C42D32397FFD9E02 CRC64;
                                                                                                                                          Pred.
                                                                                                                                                        Score 75;
                                                                                                                                                                                                                                                    NECESSARY FOR BRANCHED-CHAIN
                                                                                                                       Mismatches
                                                                                                                                             No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and conditional induction in sea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Infante A.A.;
                                                                                                                                          0.49;
                                                                                                                                                         DB 1;
                                                                                                                                                         Length 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Echinozoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRUCTURE, THE NSE, AND RIBOSOME
                                                                                                                         12;
                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10
                                                                                                                       1;
```

•				
,				
'k				

```
Title:
Perfect score:
                                                                                                                                                                                                           Database :
                                                                                                                                                                                                                                     Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                              Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                      Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                         Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Run on:
                                                                                                                                                                SPTREMBL_16:*
1: sp_archea:*
2: sp_bacteria:
3: sp_fungi:*
      5:
5:
5:
7:
7:
10:
110:
113::
                                                                                                                                                                                                                                                                                                                                                                                                 BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-484-964-2
525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  August 15, 2001, 17:12:59; Search time 91.85 Seconds (without alignments) 145.485 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                    425026 seqs, 132305027 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MSDQEAKPSTEDLGDKKQGE.....MEEEDVIEVYQEQTGGHSTV 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                            sp_archea:*
sp_bacteria:*
sp_fungi:*
                                                                                                     sp_invertebrate:*
sp_mammal:*
sp_mhc:*
sp_plant:*
sp_rodent:*
sp_unclassified:*
sp_vertebrate:*
sp_virus:*
                                                                          sp_organelle:*
sp_phage:*
                                                                                                                                                sp_human:*
                                                                                                                                                                                                                                                                                                                                          425026
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

19	18	17	16	15	14	13	12	11	10	9	8	7	σ	υı	4	ω	2	۳	Result No.
98	98.5	101	104	120.5	137.5	147	175.5	196	208	216.5	221	223.5	233	235.5	239.5	428	470.5	517	Score
18.7	18.8	19.2	19.8	23.0	26.2	28.0	33.4	37.3	39.6	41.2	42.1	42.6	44.4	44.9	45.6	81.5	89.6	98.5	Query Match Length
156	408	412	19	117	114	380	111	95	115	105	103	100	239	90	110	101	102	101	ength 1
10	σ	11	11	10	10	10	10	4	10	10	10	10	14	u	11	13	13	σ	DB
Q9SHE7	Q9GLZ9	009130	Q9QVN1	Q9FKC6	Q9FKC5	048841	Q9FLP5	095531	023759	Q9SMD1	Q9FLP6	Q9SZ24	057114	097102	Q9Z172	Q9PT08	057686	Q9MZD5	Ħ
Q9she7 arabidopsis	Q9glz9 macaca fasc	009130 mus musculu	Q9qvn1 rattus sp.	Q9fkc6 arabidopsis	Q9fkc5 arabidopsis	O48841 arabidopsis	Q9flp5 arabidopsis	095531 homo sapien			Q9flp6 arabidopsis	Q9sz24 arabidopsis	057114 mucosal dis	097102 drosophila	Q9z172 mus musculu	Q9pt08 oncorhynchu	057686 xenopus lae	Q9mzd5 cervus nipp	Description

44444 44321 5443	2 2 2 2 2 2 2 2 2 2 2 2 3 3 4 4 2 3 6 5 6 5 6 5 6 5 6 5 6 6 6 6 6 6 6 6 6	20 20 30 32 32	20 21 22 23 24 25
81 81 80 80 80 80 79.5	82 82 82 82 82 81	8 8993 15 865555	97.5 97.5 97.5 94.5 94.5
15.2 15.2 15.2	15.8 15.8 15.6	17.6 17.6 16.9 16.4	18.6 18.6 18.6 18.0 18.0
264 379 150 149 442	406 379 902 551 65 303	1 655 1 655	459 465 465 78 255 262
14 13	3 5 5 1 10 5 4 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	100	111
Q94813 Q27192 Q27192 Q9YMT1 Q9G044 Q58688 Q58688	Q27191 Q27191 Q9FH07 Q9S118 Q15871 Q27194	Q06340 Q060260 Q10577 Q9VJ33 Q9W551 Q9WF2	Q9JLL1 Q9JM64 Q9JK66 O65381 Q9ES22 Q9ES23
Q94813 tetrahymena Q27192 tetrahymena Q27192 tetrahymena Q9ymtl lymantria d Q99044 bacteriopha O58688 pyrococcus O13256 gallus gall	Q9usx3 schizosacch Q27191 tetrahymena Q9fh07 arabidopsis Q9sii8 arabidopsis Q15871 psalteriomo Q27194 tetrahymena Q901195 spodopfera	Q06340 saccharomyc Q060260 homo sapien Q10577 caenorhabdi Q9vj33 drosophila Q9m551 populus tre Q9syf2 arabidopsis	Q9jlll rattus norv Q9jm64 rattus norv Q9jm64 rattus norv Q9jk66 rattus norv Q65381 arabidopsis Q9es22 mus musculu Q9ex28 mus musculu Q9ex56 mus musculu

## ALIGNMENTS

RESULT 057686 ID 0 AC 0 DT 0	Db Qy Db	Qu Be Ma	RP RA DR DR DR DR	20000x	DT DT AC	RESULT
ULT 2 686 057686 PRELIMINARY; PRT; 102 AA. 057686; 01-JUN-1998 (TrEMBLrel. 06, Created)		Query Match 98.5%; Score 517; DB 6; Length 101; Best Local Similarity 98.0%; Pred. No. 4.8e-42; Matches 99; Conservative 1; Mismatches 1; Indels 0; Gaps	SEQUENCE FROM N.A.  Sun L.G., Yu Y.L., Jiang Y.;  Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases.  EMBL; AF242526; AAF97049.1;  InterPro; IPR000626;  Pfam; PF00240; ubiquitin; 1.  PROSITE; PES0053; UBIQUITIN_2; 1.  SEQUENCE 101 AA; 11566 MW; 89A1AAD2D054FB33 CRC64;	Cervus nippon (Sika deer). Cervus nippon (Sika deer). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eummalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervoidea; Cervidae; Cervinae; Cervus. NCBI_TaxID=9863; [1]	O9MZD5 PRELIMINARY; PRT; 101 AA.  Q9MZD5;  01-OCT-2000 (TrEMBLrel. 15, Created) 01-OCT-2000 (TrEMBLrel. 15, Last sequence update) 01-MAR-2001 (TrEMBLrel. 16, Last annotation update)	ULT 1 ZD5

0

```
RESULT
Q9PT08
            Qy
                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                       Matches
                                                                                                                                                                                                                                                                                                                                                                Q9PT08;
01-MAY-2000
01-MAY-2000
01-MAR-2001
                                                                                                                                                                                                                                                                                Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
Eukaryota; Metazoa; Chordata; Crantlata; Vertebrata; Euteleostomi;
Actinopterygii; Meopterygii; Teleostei; Euteleostei;
Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
                                                                                                       SEQUENCE
                                                                                                                                                        EMBL; AB036430; BAA89293.1; HSSP; Q93068; 1A5R.
                                                                                                                                                                                                                                                                                                                                         SUMO-1
                                                                                                                                                                                                                                                                                                                                                    SMALL UBIQUITIN-RELATED PROTEIN 1.
                                                                                                                                                                                                                                                                                                                                                                                                                    Q9PT08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR000626; -. Pfam; PF00240; ubiquitin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; 297073; CAB09807.1; -. HSSP; Q93068; 1A5R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Saitoh H., Sparrow D.B., Shiomi T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. MEDLINE=98089176; PubMed=9427648;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUMO-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-JUN-1998 (TrembLrel. 01-MAR-2001 (TrembLrel. SUMO-1 PROTEIN.
                                                                                                                              PROSITE;
                                                                                                                                                                                  Submitted (JAN-2000) to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Dasso M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Xenopus laevis (African clawed frog).
                                                                                                                                                                                                                                      TISSUE=TESTIS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Ubc9p and the conjugation of SUMO-1 to RanGAP1 and RanBP2."; Curr. Biol. 8:121-124(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=8355;
                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                         NCBI_TaxID=8022;
                                                                                                                                                                                                         Molecular cloning of trout testis small ubiquitin-related modifier-1
                                                                                                                                                                                                                        naba K
                                                                                                                                                                                                                                                 EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 NSLRFLFEGQRISDHQTPKELGMEEEDVIEVYQEQTGGHST 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                   Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
             1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MSDQEAKPSTEDLGDKKQ-GEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPM 59
                                                                                                                                                                                                                                                                                                                                                                                                                                             w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MSDQEAKPSSEDLGDKKDGGDYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYRQRQGVPM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NSLRFLFEGORIADNHTPKELGMEEEDVIEVYQEQTGGHST 100
E; PS50053; UBI
SM00213; UBQ;
ICE 102 AA; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         93;
                                                                                                                  SM00213; UBQ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                              PS50053; UBIQUITIN_2; 1.
                                                                                                                                         IPR000626; -
                                                                                                       101 AA;
                                                                                                                                                                                                                                                                                                                                                               (TrEMBLrel.
                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                         (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Xenopus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             UBIQUITIN_2;
                                                                                                       11544 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11703 MW;
                                                   81.5%;
84.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 89.6%;
                                                                                                                                                                                                                                                                                                                                                       13, Created)
13, Last sequence update)
16, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Last
Last
                                       8;
                                                                                                                                                                                 EMBL/GenBank/DDBJ databases
                                                  Score 428; DB 13;
Pred. No. 1.3e-33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 470.5;
Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     621F0289FA306E26 CRC64;
                                                                                                       E9C5709DD7B7FB12 CRC64;
                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence update) annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pu R.T., Nishimoto T., Mohun T.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                    101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1.2e-37;
                                                                 DB 13;
                                                                                                                                                                                                                                                                                                                                                                                                                    A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 13; Length 102;
                                                              Length 101;
                                       Indels
                                       0;
                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                      0,
```

```
RESULT
Q9Z172
                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                            QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                        Вр
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                            097102
                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                097102;
Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D., Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galle R.F., George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N., Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X., Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X., Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D., Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G., Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
                                                                                                                                                                    Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Eukaryota, Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                       01-MAY-1999 (TrEMBLrel. 01-MAR-2001 (TrEMBLrel.
                                                                                                MEDLINE=20196006; PubMed=10731132;
                                                                                                                STRAIN-BERKELEY;
                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                            SMT3 OR CG4494.
                                                                                                                                                                                                                                           SMT3 PROTEIN
                                                                                                                                                                                                                                                                                   01-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR000626; -...
PROSITE; PS50053; UBIQUITIN_2;
SMART; SM00213; UBQ; 1...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; AFU6384/; AA
HSSP; Q93068; 1A5R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene/pseudogenes.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SMT3A PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-MAY-1999
01-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q9Z172;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q9Z172
                                                                                                                                                      NCBI_TaxID=7227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Biochem. Mol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chen A., Mannen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=99108998; PubMed=9891849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TISSUE-LIVER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Characterization of mouse ubiquitin-like SMT3A
                                                                                                                                                                                                                                                                                                                                                                                   56
                                                                                                                                                                                                                                                                                                                                                                                                  61 SLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHST 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 SLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGG 97 :||||||||||||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>بــ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMN 60
                                                                                                                                                                                                                                                                                                                                                                                   QIRFRFDGQPINETDTPAQLEMEDEDTIDVFQQQTGGSAS
                                                                                                                                                                                                                                                                                                                                                                                                                                        MSEEKPKE-----GVKTENDHINLKVAGQDGSVVQFKIKRHTPLSKLMKAYCERQGLSMR 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TLRFLFEGORISDNHTPKELGMEDEDVIEVYQEQTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MSDTDTKPSGQDGGDQKDGEYIKLKVIGQDNSEIHFKVKMTTHLKKLKESYSQRQGVHMS 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      110 AA;
                                                                                                                                                                                                                                                                                 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (TrEMBLrel.
                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Biol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              н.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       iol. Int. 46:1161-1174(1998).
AAC99333.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Li S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            45.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12430 MW; 2950B8B1A3F88DC8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chordata;
                                                                                                                                                                                                                                                       10,
16,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22
                                                                                                                                                                                                                                                       Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                   Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 239.5;
Pred. No. 1.1
                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               110
                                                                                                                                                                                                                                                                                                               90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.1e-15;
                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97
                                                                                                                                                                                                                                                        update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and SMT3B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDNAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
```

```
RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA de Pablos B., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,
RA Durbin K.J., Evangelista C.C., Ferraz C., Ferriera S., Fleischmann W.,
RA Fosler C., Gabrielian A.E., Garg N.S., Gelbart W.M., Glasser K.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwam C.,
RA Lisk P., Lei Y., Levitsky A.A., Li J., Hernandsc J.R., Ketchum K.A.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Liu X., Mattei B., McIntosh T.C., McLeod M.P., McPherson D.,
RA Merkulov G., Milshina N.V., Mobarry C., Morris J., McShrefi A.,
RA Melson D.R., Nelson K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA Reinert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,
RA Reinert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,
RA Svirskas R., Tector C., Turner R., Venter E., Wang A.H., Wang X.,
RA Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J.,
RA Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J.,
RA Ye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng L.,
RA Sheng X.H., Moyd F.N., Zhong W., Zhou X., Zhu X., Smith H.O.,
RA Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.;
"The genome sequence of Drosophila melanogaster.";

Science 287:2185-2195(2000).
RESULT
057114
ID 05
AC 05
                                                                                                                  밁
                                                                                                                                                     Ş
                                                                                                                                                                                            멍
                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 46
057114
057114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Huang H.W., Tsoi S.C., Sun Y.H., Li S.S.;
"Identification and characterization of the SMT3 cDNA and gene encoding ubiquitin-like protein from Drosophila melanogaster.";
Biochem. Mol. Biol. Int. 46:775-785(1998).
EMBL; AE003615; AAF52470.1; -.
EMBL; AF018862; AAF31702.1; -.
EMBL; AF053083; AAF31702.1; -.
EMBL; AF053083; AAF31702.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      conjugation machinery.";
J. Biol. Chem. 275:4033-4040(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE-99060729; PubM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=20127880; PubMed=10
Bhaskar V., Valentine S.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   FlyBase; FBgn0026170; smt3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "A functional interaction between Dorsal and components of the Smt3
                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR000626; -.
PROSITE; PS50053; UBIQUITIN_2; 1.
                                                                                                                  61
                                                                                                                                                         70
                                                                                                                                                                                                                                  13
                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                            ب
                                                         6
                                                                                                                                                                                                                LGDKKQG---EYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQ 69
                                                                                                                  PINENDTPTSLEMEEGDTIEVYQQQTGG
                                                                                                                                                         RIADNHTPKELGMEEEDVIEVYQEQTGG
                                                                                                                                                                                                MSDEKKGGETEHINLKVLGQDNAVVQFKIKKHTPLRKLMNAYCDRAGLSMQVVRFRFDGQ 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q93068; 1A5R.
                                                                                                                                                                                                                                                                         46;
                                                                                                                                                                                                                                                                                                                                                                                          SM00213; UBQ;
                                                                                                                                                                                                                                                                                                                                                                         90 AA;
                                                                                                                                                                                                                                                                         Conservative
                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PubMed=10660560;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PubMed=9844739;
                                                                                                                                                                                                                                                                                                                                                                       10124 MW;
                                                                                                                                                                                                                                                                                            44.9%; 52.3%;
                                                                                                                                                                                                                                                                         16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Courey A.J.;
                                                                                                                                                                                                                                                                                            Score 235.5;
Pred. No. 2.2
                                                                                                                                                                                                                                                                                                                                                                         E49DA04C24A13CA5 CRC64;
                      PRT;
                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                         97
                      239
                      B
                                                                                                                                                                                                                                                                                              .2e-1
                                                                                                                                                                                                                                                                                                              DB 5;
                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                         ω
••
                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                             ۲,
```

```
RESULT
Q9SZ24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                            Q9SZ24
Q9SZ24
Q1-MAY 2000 (TrEMBLrel. 1
01-MAY 2000 (TrEMBLrel. 1
01-CT-2000 (TrEMBLrel. 1
01-CT-2000 (TrEMBLrel. 1
UBIQUITIN-LIKE PROTEIN
F10M23.180 OR AT4G26840.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-JUN-1998 (TrEMBLrel. 06, Created)
01-JUN-1998 (TrEMBLrel. 06, Last sequence update)
01-MAR-2001 (TrEMBLrel. 16, Last annotation update)
01-MAR-2001 (TREMBLREL. 16, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qi F., Berry E.S.;
Submitted (FEB-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; U89438; AAB92355.1; -.
HSSP; Q93068; 1ASR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE; PS50053; UBIQUITIN_2; SMART; SM00213; UBQ; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN-SNC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pestivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mucosal disease virus
                                                                                                                                                                                                                                                                                                         Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II;
Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=11099;
             EU Arabidopsis sequencing project;
Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases
EMBL; AL035440; CAB36530.1; -.
EMBL; AL161565; CAB79539.1; -.
                                                                                                                                                                                                                      Bevan M., Lecharny A., Chefdor F., Krivitzky M., Kreis M., Hoheisel J., Mewes H.W., Mayer K.F.X., Schueller C.; Submitted (FEB-1999) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nonstructural protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro;
                                                                                             Submitted (MAR-2000)
                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                 Submitted
                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                            NCBI_TaxID=3702;
                                                                    SEQUENCE FROM N.A.
                                                                                                                         Lecharny A., Chefdor F.,
                                                                                                             Lemcke K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    113 QIRFRFDGQPINETDTPAQLEMEDEDTIDVFQQQTGGGPAV 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 SLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MSDQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMN 60
                                                                                                                                                                 Arabidopsis sequencing project;
bmitted (MAY-1999) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MADEKPKEGVK----TENNDHINLKVAGQDGSVVQFKIKRHTPLSKLMKAYCERQGLSMR 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IPR000626; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        239 AA;
                                                                                                             Mayer K.F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                44.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26881 MW;
                                                                                              ç
                                                                                                                                                                                                                                                                                                                                                                                           13,
                                                                                                the
                                                                                                                          Krivitzky M., Kreis M., Mewes H.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                           Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                       Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                       Created)
                                                                                                EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 233; DB 14;
Pred. No. 1.1e-14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7D7952874D37AE90 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    100
                                                                                                                                                                                                                                                                                                                                                                                                                                                    A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 239;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u>,,</u>
```

```
RESULT
Q9SMD1
ID Q9SMD1
ID Q9SMD1
ID Q9SMD1
OS Q9SMD1
OS G1
OS G1
OC G1

                                                                                                                                                                                                                                                                                                                                                                                                                                                      δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QΥ
                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SQ DR DR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         O9FLP6;
O1-MAR-2001 (TremBLrel. 16, Created)
O1-MAR-2001 (TremBLrel. 16, Last sequence update)
O1-MAR-2001 (TremBLrel. 16, Last sequence update)
O1-MAR-2001 (TremBLrel. 16, Last annotation update)
UBIQUITIN-LIKE PROTEIN SMT3-LIKE.
Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                       Q9SMD1;
01-MAY-2000 (TrEMBLrel.
01-MAY-2000 (TrEMBLrel.
01-MAR-2001 (TrEMBLrel.
                   Lycopersicon esculentum (Tomato).

Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
Magnoliophyta; eudicotyledons; core eudicots; Asteridae; euasterids I;
           Solanales;
                                                                                                                 SUMO
                                                                                                                                       SUMO PROTEIN.
                                                                                                                                                                                                                                                                        Q9SMD1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Structural analysis of Arabidopsis thaliana chromosome 5. IV. Sequence features of the regions of 1,456,315 bp covered by nineteen physically assigned Pl and TAC clones.";
DNA Res. 5:41-54(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=98290546; PubMed=9628582;
Sato S., Kaneko T., Kotani H., Nakamura Y., Asamizu E., Miyajima N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro: IPR000626; -.
InterPro: IPR001596; -.
PROSITE; PS00387; PPASE; UNKNOWN_1.
PROSITE; PS50053; UBIQUITIN_2; 1.
SEQUENCE 100 AA; 10976 MW; 6F1E8721E7734A4A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tabata S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN=COLUMBIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q9FLP6
                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                      73 DNHTPKELGMEEEDVIEVYQEQTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15 DKK--QGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCORQGVPMNSLRFLFEGQRIA 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15 DKKQGE---YIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRI 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                œ
                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                       AEQTPDELEMEDGDEIDAMLHQTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DKKPDQGAHINLKVKGQDGNEVFFRIKRSTQLKKLMNAYCDRQSVDFNSIAFLFDGRRLR 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RAEQTPDELDMEDGDEIDAMLHQTGG 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DKKPGDGGAHINLKYKGQDGNEVFFRIKRSTQLKKLMNAYCDRQSVDMNSIAFLFDGRRL 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AB010071;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
  Solanaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     103 AA;
                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BAB08585.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11654 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            42.1%;
51.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  42.6%; Score 223.5; 51.2%; Pred. No. 3.
Solanum
                                                                                                                                                    13, Created)13, Last sequence update)16, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 221; DB 10;
Pred. No. 5.9e-14;
                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         97
                                                                                                                                                                                                                                                                                                                                                                                                       92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E8F9C486588FF342 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               103
                                                                                                                                                                                                                                                                   105 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.3e-14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 10; Length 100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1;
```

ID 095531 RESULT 11

095531

PRELIMINARY;

PRT;

95 AA.

```
RESULT 10
023759
ID 023759
AC 023759
AC 023759
DT 01-JAN
                                                             Ωy
      Ъ
                                                                                                                           В
                                                                                                                                                                                  Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                  HSSP: Q93068; 1A5R.
Mendel; 26845; Clcar;3065;26845.
InterPro: IPR000626; -
InterPro: IPR001596; -
IRSOSITE; PS00387; PPASE; UNKNOWN_1.
PROSITE; PS500387; UBQ; IIII 2; 1.
SMART; SM00213; UBQ; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    UBIQUITIN PROTEIN.

Cicer arietinum (Chickpea) (Garbanzo).

Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids I;

Fabales; Fabaceae; Papilionoideae; Cicer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Munoz F.J., Dopico B., Labrador E.;
Plant Physiol. 116:1605-1605(1998).
EMBL; AJ001901; CAA05079.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
STRAIN=CV. CASTELLANA; TISSUE=ETIOLATED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-MAR-2001 (TrEMBLrel. 16, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          023759;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        023759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SMART; SM00213; UBQ; SEQUENCE 105 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Isolation of a novel tomato T-SUMO protein that suppresses hypersensitive cell death.";
Submitted (NOV-1998) to the EMBL/GenBank/DDBJ databases.
EMBL; AJ012717; CAB60728.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=3827;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR000626; -.
PROSITE; PS50053; UBIQUITIN_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=4081;
      61
                                                          59 MNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQT 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62 AFLFDGRRLRAEQTPDELEMEEGDEIDAMLHQTGG 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                63 RFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Match 41.2%; Score 216.5; DB 1
Local Similarity 45.3%; Pred. No. 1.6e-13;
                                                                                                                    1 MSGATPNPTPNPEEDKKPNDAAHINLKVKGQDGNEVFFRIKRNTQLKKLMNAYCDRQSVD
                                                                                                                                                                                  1 MSDQEAKPSTEDLGDKKQGE--YIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVP 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
LNSTAFLFDGRRLRAEQTPDELDMEDGDEIDAMLHQT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEDKKPN-----DQMVHINLKVKGQDGNEVFFRIKRSTQMRKLMNAYCDRQSVDMNSI 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DQEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSL 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             43;
                                                                                                                                                                                                                                                                                                                                                                                                           115 AA;
                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                     12858 MW; DE5C35328588E142 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11875 MW; C8D0EA4832727779 CRC64;
                                                                                                                                                                                                                                                                                39.6%; Score 208; DB 10; 44.3%; Pred. No. 1.1e-12;
                                                                                                                                                                                                                                                   15; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EPICOTYLS;
   97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 10; Length 105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                   37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28;
                                                                                                                                                                                                                                                                                                          Length 115;
                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                               2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7;
                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                               ۲.
```

```
OSPEPS
AC OSSESSOR

RTD OS ALL

OC OSSESSOR

RTD SILL

R
                                                                 δÃ
                                                                                                                                             В
                                                                                                                                                                                                          δÃ
   Вþ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ωy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AC DE RANGE OF THE RANGE OF THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q9FLP5
Q9FLP5;
Q9FLP5;
01-MAR-2001 (TEMBLrel. 16, C
01-MAR-2001 (TEMBLrel. 16, L
01-MAR-2001 (TEMBLrel. 16, L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       095531;
01-MAY-1999 (TrEMBLrel. :
01-MAY-1999 (TrEMBLrel. :
01-MAR-2001 (TrEMBLrel. :
DJ281H8.4 PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR000626; -.
InterPro; IPR000626; -.
PROSITE; PS50053; UBIQUITIN_2;
SMART; SM00213; UBQ; 1.
SMOUZH 95 AA; 10653 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (NOV-1998) to the EMBL; AL031133; CAA20019.1; HSSP; Q93068; 1A5R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens (Human).
Eukaryota; Metazoa; C
Mammalia; Eutheria; P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Structural analysis of Arabidopsis thaliana chromosome Sequence features of the regions of 1,456,315 bp covered
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    physically assigned P1 and TAC clones."; DNA Res. 5:41-54(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tabata S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sato
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=98290546; PubMed=9628582;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN-COLUMBIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Brassicales; Brassicaceae; Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Arabidopsis thaliana (Mouse-ear cress).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   UBIQUITIN-LIKE PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DJ281H8.4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=9606;
   60
                                                                    64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    63 GGQPISGTDKPAQLEMEDEDTIDVFQQPTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7
FIFNGARIGGLETPDELDMEDGDVIDACRAMSGG
                                                                                                                                                                                                              QEAKPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLR 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EGQRIADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KPSTEDLGDKKQGEYIKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLF 66
                                                                 FLFEGORIADNHTPKELGMEEEDVIEVYQEQTGG 97
                                                                                                                                         QDDKPI-----DQEQEAHVILKVKSQDGDEVLFKNKKSAPLKKLMYVYCDRRGLKLDAFA 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KP-TEEV-KTENNNHINLKVAGQDGSVVQFKIKRQTPLSKLMKAYCEPRGLSVKQIRFRF 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AB010071; BAB08586.1; -.
ICE 111 AA; 12580 MW; 79544A00709B67EC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       40;
                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kaneko T., Kotani H., Nakamura Y., Asamizu E., Miyajima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -Mohammadi M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                             33.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chordata;
Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         37.38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     44.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10,
16,
                                                                                                                                                                                                                                                                                               17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                      Score 175.5; DB 10; Length 111; Pred. No. 1.3e-09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 196; DB 4;
Pred. No. 1.3e-11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8C7F7C29734ED223 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  update)
                                                                                                                                                                                                                                                                                       34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            covered
                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>σ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bу
                                                                                                                                                                                                                                                                            5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nineteen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2
                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        z
                                                                                                                                                                                                                                                                                       1;
```

```
RESULT
10 PWC5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 13
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q9FKC5 PRELIMINARY; PRT; 114 AA.
Q9FKC5;
01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-MAR-2001 (TrEMBLrel. 16, Last annotation update)
SIMILARITY TO SMALL UBIQUITIN-RELATED PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        048841; PRELIMINARY; PRT; 380 AA. 048841; O1-JUN-1998 (TrEMBLrel. 06, Created) O1-JUN-1998 (TrEMBLrel. 06, Last sequence update) O1-MAR-2001 (TrEMBLrel. 16, Last annotation update)
                                                                                                                                               "Structural analysis of Arabidopsis thaliana chromosome 5. VI. Sequence features of the regions of 1,367,185 bp covered by 19 physically assigned Pl and TAC clones."; DNA Res. 5:203-216(1998).
EMBL; AB012242; BAB09424.1; -.
                                                                                                                                                                                                                                                                                                                                                         STRAIN=COLUMBIA; MEDLINE=98403884; PubMed=9734815;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR000626; -
PROSITE; PS50053; UBQ; 1
SMART; SM00213; UBQ; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN-CV. COLUMBIA; Rounsley S.D., Lin X., Ketchum K.A., Crosby M.L., Brandon R.(Sykes S.M., Kaul S., Mason T.M., Kerlavage A.R., Adams M.D., Sykes S.M., Kaul S., Wenter J.C.; Somerville C.R., Venter J.C.; Submitted (FEB-1998) to the EMBL/GenBank/DDBJ databases. EMBL; AC003974; AAC04487.1; -.
HSSP; Q93068; 1A5R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II;
                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                 Kotani H., Nakamura Y., Sato S., Asamizu E., Kaneko T., Miyajima
Tabata S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Brassicales; Brassicaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Magnoliophyta; eudicotyledons; core eudicots;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Arabidopsis thaliana (Mouse-ear cress)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Brassicales; Brassicaceae; Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     F24L7.10 PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360 MEEEDEICMVMELGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              300 VTLKVKNQQGAEDLYKIGTHAHLKKLMSAYCTKRNLDYSSVRFVYNGREIKARQTPAQLH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   82 MEEEDVIEVYQEQTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22 IKLKVIGQDSSEIHFKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                      114 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    380 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      UBIQUITIN_2;
BQ; 1.
                                                                                                                      13409 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42844 MW; CBD11F8998517C10 CRC64;
   38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28.0%; Score 147; DB 10; 39.5%; Pred. No. 2.5e-06; Mismatches 31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          375
   Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Last annotation update)
   Score 137.5; DB 1
Pred. No. 5.6e-06;
                                                                                                                      9D5C8D9154856914 CRC64,
                               DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rosidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              eurosids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81
```

0

```
RESULT 15
Q9FKC6
AC Q9FKC6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DЬ
                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                     DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       οy
Search completed: August 15, 2001, 17:19:49 Job time: 410 sec
                                                                                                                                                                                                          DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 23.0%; Score 120.5; DB 10; Length 117; Best Local Similarity 33.3%; Pred. No. 0.00023; Matches 34; Conservative 19; Mismatches 44; Indels 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q9FKC6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Structural analysis of Arabidopsis thaliana chromosome 5. VI. Sequence features of the regions of 1,367,185 bp covered by 19 physically assigned P1 and TAC clones.";
DNA Res. 5:203-216(1998).
EMBL; AB012242; BAB09423.1; -.
SEQUENCE 117 AA; 13528 MW; 24B9909A77387F59 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-MAR-2001 (TrEMBLrel. 16, Last annotation update)
SIMILARITY TO SMALL UBIQUITIN-RELATED PROTEIN.
Arabidopsis thaliana (Mouse-ear cress).
Eukaryota, Viridiplantae, Embryophyta; Tracheophyta; Spermatophyta;
Eukaryota, Viridiplantae, Embryophyta; Core eudicots; Rosidae; eurosids II;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN-COLUMBIA;
MEDLINE-98403884; PubMed-9734815;
KOtani H., Nakamura Y., Sato S., Asamizu E., Kaneko T., Miyajima N.,
Tabata S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       87 LERKDGDEIDAMLCQQSG 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80 LGMEEEDVIEVYQEQTGG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27 HYTLKVKGQDEEDFRVFWVRRNAKLLKMMELYTKMRGIEWNTFRFLFDGSRIREYHTPDE 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21 YIKLKVIGQDSSEIH-FKVKMTTHLKKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKE 79
                                                                                                                                                                                                          73
                                                                                                                                                                                                                                                                               63 RFLF-EGQRIADNHTPKELGMEEEDVIEVY--QEQTGGHSTV 101
                                                                                                                                                                                                                                                                                                                                                                     13
                                                                                                                                                                                                                                                                                                                                                                                                                                                   5 EAKPSTEDLGD-KKQGEYIKLKVIGQDSSEIH-FKVKMTTHLKKLKESYCQRQGVPMNSL 62
                                                                                                                                                                                                 RFLSDDGSRIREYHTADDMELKDGDQIDALLPQESGFGPSTV 114
                                                                                                                                                                                                                                                                                                                                                                     EVKMEGEKRKDVESESTHVTLNVKGQDEEGVKVFRVRRKARLLKLMEYYAKMRGIEWNTF 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 117 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ۲,
```

```
gb_est80:BE861560
gb_est85:BF244251
gb_est40:AV667206
gb_est73:BE374647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     About: Results were produced by the GenCore software, version 4.5, Copyright (c) 1993-2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OM of: US-09-484-964-2 to: EST:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Database sequences: 10228115
Database length: 431459454
Search time (sec): 1171.960000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query length: 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Command line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Date: Aug 15,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Database: EST:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Search
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gb_est10:AA636685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -Q-ygn2_1/USPTO_Spool/US99484964/runat_14082001_111835_26779/app_query.fasta_1.158
-DB=EST -QFMT=fastap -SUFFIX=rst -CAROP=12.000 -GAPEXT=4.000
-MINNATCH=0.100 -LOOPCL=0.000 -LOOPEXT=0.000 -QGAPOP=4.500
-QGAPEXT=0.050 -XGAPOP=10.000 -XGAPEXT=0.500 -FGAPOP=6.000
-FGAPEXT=7.000 -YGAPOP=10.000 -YGAPEXT=0.500 -DELOP=6.000
-DELEXT=7.000 -START=1 -MATRIX=DLOSUM62 -TRANS=human40.cdi
-LIST=45 -DOCALIGN=200 -THR_SCORE-pct -THR_MAX=100 -THR_MIN=0
-ALIGN=15 -MODE=LOCAL -OUTFMT=pfs -NORM=ext -MINLEN=0
-MAXLEN=200000000 -SER-US99484964_@CGN1_1_2867 -NCPU=6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gb_est23:AI646104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gb_est10:AA682161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gb_est13:AA896203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gb_est7:AA421208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gb_est14:AA981271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gb_est4:AA227355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gb_est4:AA227354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gb_est8:AA473590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           score_list:
                                                                         gb_est92:BF796549
gb_est78:BE748397
                                                                                                                                                                                                                                                                                                        gb_est54:AW989449
gb_est51:AW740709
gb_est72:BE226598
                                                                                                                                                                                                                                                                                                                                                                                          gb_est45:AW323392
gb_est44:AW239296
                                                                                                                                                                                                                                                                                                                                                                                                                                                  gb_est1:AA030059
gb_est7:AA399812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gb_est77:BE629396
gb_est75:BE482995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gb_est7:AA401864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gb_est75:BE482568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gb_est86:BF323866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gb_est7:AA423388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gb_est95:BF978928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gb_est15:AI047190
                                                    gb_est91:BF691249
                                                                                                                                                                                                                                                      gb_est7:AA399819
                                                                                                                                                                                                                                                                              gb_est47:AW465185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gb_est71:BE197453
gb_est48:AW519530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Jb_est73:BE331886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    b_est106:N31695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -MODEL=frame+_p2n.model -DEV=xlp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ICPU=3 -LONGLOG -NO_XLPXY -WAIT -THREADS=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-484-964-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               information block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ':BE629376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Strd Orig
+ 522.00 1
+ 522.00 1
+ 522.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5:39
522.00
522.00
522.00
522.00
522.00
522.00
522.00
522.00
522.00
522.00
522.00
522.00
522.00
522.00
522.00
522.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                522.00
522.00
522.00
522.00
522.00
522.00
522.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ΡM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  522.00
522.00
522.00
522.00
522.00
522.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0 1191 18
1190 10
1190 82
1190 22
1190 15
1190 11
1190 11
1190 11
1189 92
1189 92
1189 69
1189 69
1189 53
1189 53
1189 92
1189 92
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1189 99
1188 99
1188 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1193.11
1191.91
1191.71
                                                                                  1187.85
1187.57
1187.55
1187.33
1187.19
                                                                                                                                                                                                                         1188.41
1188.22
1187.93
                                                                                                                                                                                                                                                                                                        1188.78
1188.78
1188.68
1188.68
1188.57
1188.57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZScore
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       out_format : pfs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EScore Len
2.4e-57 32
2.9e-57 36
2.9e-57 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.6e-57
3.6e-57
3.7e-57
3.7e-57
3.7e-57
3.7e-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.1e-57
3.2e-57
3.3e-57
3.5e-57
3.6e-57
4.6e-57
4.8e-57
5.0e-57
5.0e-57
5.1e-57
5.2e-57
5.3e-57
5.4e-57
5.4e-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.6e-57
                                                                                                                                                                                                                                                                                 4.4e-57
4.4e-57
4.5e-57
                                                                                                                                                                                                                                                                                                                                                                                                                           1.3e-57
1.3e-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.9e-57
3.9e-57
1.0e-57
                                                                                                                                                                                                                                                                                                                                                                   1.3e-57
1.3e-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1.1e-57
1.2e-57
1.3e-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .0e-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .8e-57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         en | Documentation | 121 | AA47350 vyG3h04.rl Beddington | 361 | AA27354 zr22ell.rl Stratagene | 368 | AA227355 zr22el2.rl Stratagene | 368 | AA227355 zr22el2.rl Stratagene | 368 | A180895 ub77a05.rl Scares_mamm | 391 | AA981271 vx60f07.rl Stratagene | AA421208 zu05h05.rl Scares_test | AA421208 zu05h05.rl Scares_test | AA421208 zvx62d07.rl Scares_embt | 426 | AA447120 ubf2d04.rl Scares_embt | 427 | A147190 ubf2d04.rl Scares_embt | 428 | AA421288 co2147602F1 NIH_MGC_62 | AA423388 v29b12.rl Scares_mamm | 438 | AA423388 v29b12.rl Scares_mamm | 438 | AA423388 v39b12.rl Scares_mamm | 439 | AF323866 SnBST4420f08.yl cos t | B1482568 l68404 BARC 5BOV Bos t | AA401864 zvx5b12.rl Scares_mamm | 444 | BA482568 l68404 BARC 5BOV Bos t | AA401864 zvx5b12.rl Scares_mamm | 449 | AA401864 zvx5b12.rl Scares_mamm | 449 | AA401864 zvx5b12.rl Scares_mamm | 440 | AA401864 zvx5b12.rl Scares_mamm |
                                                                                                                                                                                                                                                                                                           BE629376 uu37c02.yl Soares_mamw N31695 yx69g0l.rl Soares meland BE331886 uu05c09.yl Soares_thym BE629396 uu37d12.yl Soares_thym BE629396 uu37d12.yl Soares_mamm BE482995 168990 BARC 5BOV Bos t BE197453 ug74f06.yl Soares_mous AA030059 mi122h03.rl Soares mous AA030059 mi22h03.rl Soares mous AA039052 vd7f12.rl Beddington AW323392 uv558g05.yl NCI_CGAP_LU AW233926 xb38e11.yl NCI_CGAP_LU AW23926 xb38e11.yl 
                             AW465185 BP230018Å10G10 Soares
AA399819 vd71h12.rl Beddington
BB861560 Ur_M-AH1-ago-e-04-0-Ul
BF244251 601863007F1 NIH_MGC_57
AV667206 AV667206 Bos taurus ad
BB274647 601224145F1 NCI_CGAP_M
BF796549 602258408F1 NIH_MGC_55
BF796549 602257840F1 NIH_MGC_55
BF691249 60225785F1 NIH_MGC_55
BF691249 60225785F1 NIH_MGC_65
BF691249 60225785F1 NIH_MGC_65
BF691249 60225785F1 NIH_MGC_65
     yx76d09.rl
              Soares meland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      seq_name: gb_est8:AA473590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                   alignment_block:
                                                                                                                                                                                                                                                                                                                          alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                             Align seg 1/1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
        1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AA473590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Waterston, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           nouse mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MGI:510159
                                                                                                                                                                                                                                                                                                                                                                                                                                            118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               +
```

```
gb_est40:AV713980
gb_est73:BE372589
gb_est74:BE439688
gb_est101:BG529395
                                                                                                          Quality: 522.00
Ratio: 5.168
Percent Similarity: 100.000
                                              US-09-484-964-2 x AA473590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA473590 321 bp mRNA EST 18-UUN-1997
vg63h04.r1 Beddington mouse embryonic region Mus musculus cDNA
clone IMAGE:866071 5' similar to TR:G927779 G927779 SUPPRESSOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 (bases 1 to 321)
Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T.,
Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Seq primer: -28m13 rev1 ET from Amersham High quality sequence stop: 304. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Email: mouseest@watson.wustl.edu
This clone is available royalty free through LLNL; contact the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Lo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AA473590.1 GI:2201817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MIF2 MUTATIONS. ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Marra M/Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IMAGE Consortium (info@image.llnl.gov) for further information.
to: AA473590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     314 286 1800
314 286 1810
                                                                                                                                                                                                                                                                           developed head folds and all extraembryonic tissues. Average insert size: 1.3 kb (range: 0.5 - 3.0 kb). Referenced in Development 121, 2479-2489 (1995)" 51 c 75 g 77 t
                                                                                                                                                                                                                                                                                                                                                                       /not="Organ: whole embryo; Vector: pCMV-SPORT; Site_1: Sall; Site_2: NotI; Cloned unidirectionally. Primer: Oligo dT. Gastrulating embryos were collected at 7.5dpc from C57BL6 x DBA matings, excluding embryos that had
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /tissue_type="embryo"
/dev_stage="7.5dpc"
/lab_host="DH12S"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone="IMAGE:866071"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /strain="C57BL6 x DBA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /sex="pooled"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone_lib="Beddington mouse embryonic region"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            522.00
522.00
522.00
522.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1186.
1186.
1186.
1186.
    from: 1
                                                                                              Gaps: 0
Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . 86
. 86
. 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5.4e-57
5.4e-57
5.4e-57
5.9e-57
       ţo:
                                                                                                                                                                  Length:
       321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AV713980 AV713980 DCB Homo s
BE372589 601223845F1 NCI_CGA
BE439688 HTM1-359F HTM1 Homo
BG529395 602558547F1 NIH_MGC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18-JUN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ç
```

N

152

51

67

```
seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq_name: gb_est4:AA227354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   302 GTT 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      202 AGGTCAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              102 TACATTTCAAAGTGAAAATGACAACATCTCAAGAAACTCAAAGAATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TACTGTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTAGGCGATAAGAA 51
                                                                                                                                                                                                                                                                                                                                       This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information. Seq primer: -28ml3 rev1 ET from Amersham High quality sequence stop: 282. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 (bases 1 to 361)
Hillier, L., Lennon, G., Becker, M., Bonaldo, M.F., Chiapelli, B., Chiasoel, S., Dietrich, N., DuBuque, T., Favello, A., Gish, W., Hawkins, M., Hultman, M., Kucaba, T., Lacy, M., Le, M., Le, N., Mardis, E., Moore, B., Morris, M., Parsons, J., Prange, C., Rifkin, L., Rohlfing, T., Becklenberg, K., Soares, M.B., Tan, F., Thierry-Meg, J., Trevaskis, E., Underwood, K., Wohldmann, P., Waterston, R., Wilson, R. and Marra, M. Generation and analysis of 280,000 human expressed sequence tags 97044478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Washington University School of Medicine 4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Wilson RK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AA227354 361 bp mRNA EST 24-FEB-1997 zr22611.rl Stratagene NT2 neuronal precursor 937230 Homo sapiens CDNA clone IMAGE:664172 5' similar to TR:G927779 G927779 SUPPRESSOR OF MIF2 MUTATIONS. ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AA227354.1 GI:1848909
                       /clone_lib="Stratagene NT2 neuronal precursor 937230"
/tissue_type="neuroepithelial cells"
/dev_stage="Ntera-2 neuroepithelial cells"
/lab_host="SOLR (kanamycin resistant)"
/note="Organ: brain; Vector: pBluescript SK-; Site_1:
ECORI; Site_2: XhoI; Cloned unidirectionally. Primer:
                                                                                                                                                                                                                                /db_xref="GDB:5426089"
/db_xref="taxon:9606"
                                                                                                                                                                                                        /clone="IMAGE:664172"
                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361 bp
Uninduced, exponentially growing neuroepithelial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         67
                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              51
```

REFERENCE

AUTHORS

SOURCE

ORGANISM

KEYWORDS VERSION DEFINITION

FEATURES

source

COMMENT

MEDLINE TITLE JOURNAL

```
seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seq_name: gb_est4:AA227355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      alignment_block:
US-09-484-964-2 x AA227354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Align seg 1/1 to: AA227354 from: 1 to: 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              354 GTT 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               204 TACTGTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              154 TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         104 GGAAGGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17 sGlnGlyGluTyrIleLysLeuLysVallleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           54 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTGGGGGGATAAGAA 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGGTCAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGG 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG
                                                                                                                                                                                                     Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 368)

Hillier,L., Allen,M., Bowles,L., Dubuque,T., Geisel,G., Jost,S., Krizman,D., Kucaba,T., Lacy,M., Le,N., Lennon,G., Marra,M., Martin, J., Moore,B., Schellenberg,K., Steptoe,M., Tan,F., Theising,B., White,Y., Wylie,T., Waterston,R. and Wilson,R.

WashU-NCI human EST Project
Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AA227355 368 bp mRNA EST 11-MAR-1998 zr22612.rl Stratagene NT2 neuronal precursor 937230 Homo sapiens cDNA clone IMAGE:664174 5' similar to TR:6927779 G927779 SUPPRESSOR
                                                                                                                                               Washington University School of Medicine
                                                                                                                                                                                   Contact: Wilson RK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OF MIF2 MUTATIONS. ;, mRNA sequence. AA227355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA227355.1 GI:1848910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ratio:
clone is available royalty-free through LLNL; contact the
                                                                 314 286 1800
314 286 1810
                                                                                                              Forest Park Parkway, Box 8501, St. Louis, MO 63108
                                   est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cells (Ntera-2/cl.D1). Average insert size: 1.0 kb; Uni-ZAP XR Vector; ~5' adaptor sequence: 5' GAATTCGGCACGAG 3' ~3' adaptor sequence: 5' CTCGAGTTTTTTTTTTTTTTTTTT 3'" a 68 c 92 g 80 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  522.00
5.168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  253
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Align seg 1/1 to: AA227355 from: 1 to: 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-484-964-2 x AA227355
KEYWORDS
SOURCE
                                                                                                                                                                     seq_name: gb_est17:AI180895
                                                                                                                                       seq_documentation_block:
                                                                                                      DEFINITION
                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  103 GGAAGGTGAATATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               153 TTCACTTCAAAGTGAAAATGACAACACCTCAAGAAACTCAAAGAATCA 202
                                                                                                                                                                                                                                                                                 303 AAGAAGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACA 352
                                                                                                                                                                                                              353 GTT 355
                                                                                                                                                                                                                                                                                                                                                     253 GGGTCAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGG 302
                                                                                                                                                                                                                                                                                                                                                                                                                        34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysCluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    53 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTGGGGGATAAGAA 102
                                                                                                                                                                                                                                                 101 Val 101
                                                                                                                                                                                                                                                                                                                                                                          67 uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
                                                                                                                                                                                                                                                                                                   84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Quality:
                                                                  ub77ad5.rl Soares_mammary_gland_nMLMG Mus musculus cDNA clone IMAGE:1383728 5' similar to SW:SM33_HUMAN Q93068 UBIQUITIN-LIKE PROTEIN SWT3C ;, mRNA sequence.
     house mouse
                                     AI180895.1 GI:3731533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone_lib="Stratagene NT2 neuronal precursor 937230"
/tissue_type="neuroepithelial cells"
/dev_stage="Ntera-2 neuroepithelial cells"
/lab_host="SOLR (kanamycin resistant)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:9606"
/clone="IMAGE:664174"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Organ: brain; vector: pBluescript SK:; Site_1: ECORI; Site_2: XhOI; Cloned unidirectionally. Primer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Homo sapiens"
/db_xref="GDB:5426092"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        522.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5.168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               69 c
                                                                                                                      388 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .91 g
                                                                                                                              mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 36 t
```

```
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Quality: 522.00
Ratio: 5.168
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Align seg 1/1 to: AI180895 from: 1 to: 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-484-964-2 x AI180895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                         136 GGAAGGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGA 185
                                                                          236 TACTGTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGA 285
                                                                                                                                                                          186 TACATTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA 235
                                                                                                                                                                                                                                                                                                                                                                           17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                  51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                    34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                     67 uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 388)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
Possible reversed clone: similarity on wrong strand Seq primer: -28ml3 rev2 ET from Amersham High quality sequence stop: 185.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Washu-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Lc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Theising, B., Wylie, T., Lennon, G., Soares, B., Wilson, R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Marra M/Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Waterston, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Email: mouseest@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MGI:906196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          · 129 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                314 286 1800
314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     polylinker; 1st strand cDNA was prepared from mammary polylinker; 1st strand cDNA was prepared from mammary gland tissue from a lactating female, and was then primed with a Not I - oligo(dT) primer. Double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector. Library is normalized. Library was constructed by Bento Soares and M. Fatima Bonaldo. was constructed by Bento Soares and M. Fatima Bonaldo. a 72 c 103 g 82 t 2 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone_lib="Soares_mammary_gland_NMLMG"
/sex="female (lactating)"
/tissue_type="mammary gland"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="IMAGE:1383728"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="Vector: pT7T3D-Pac (Pharmacia) with a modified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cDNA was
```

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                            Align seg 1/1 to: AA981271 from: 1 to: 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                         US-09-484-964-2 x AA981271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                 Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  seq_name: gb_est14:AA981271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       386 GTT 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               286 AGGTCAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGACG 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
WashIngton University School of Medicinep
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 391)
Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T.
Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The WashU-HHMI Mouse EST Project Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           vx60f07.rl Stratagene mouse macrophage (#937306) Mus musculus cDNA clone IMAGE:1279621 5' similar to SW:SM33_HUMAN Q93068 UBIQUITIN-LIKE PROTEIN SMT3C;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AA981271.1 GI:3159807
                                                                                                                                                                                                                                                                                                                                                                           Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        nouse mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          128 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 primer: -28m13 rev1 ET from Amersham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  quality sequence stop: 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mouseest@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                  522.00
5.168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /lab_host="SOIR (kanamycin resistant)"
//ab_host="SOIR (k
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="taxon:10090"
/clone="IMAGE:1279621"
/clone_lib="Stratagene mouse macrophage (#937306)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /tissue_type="macrophage"
/dev_stage="WEHI-3 cell line"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               adaptor sequence: 5,0 c 95 g 97 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             391 bp
                                                                                                                                                                                                                                                                                                    Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA
                                                                                                                                                                                                                                                                                                                                                                                                 Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27-MAY-1998
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq_name: gb_est7:AA421208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360 GTT 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        310 AAGAAGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCACTCGACG 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                260 AGGTCAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       210 TACTGTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGA 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 160 TACATTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        110 GGAAGGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGA 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        67 uGlyGlnArgIleAlaAspAsnHisThrProLySGluLeuGlyMetGluG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTAGGCGATAAGAA 109
                                                                                                                                                                                                                                                                                                                                                                  Email: est@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
TMAGE Consortium (info@image.llnl.gov) for further information.
Seq.primer: -28ml3 rev2 ET from Amersham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hillier,L., Allen,M., Bowles,L., Dubuque,T., Geisel,G., Jost,S., Kucaba,T., Lacy,M., Le,N., Lennon,G., Marra,M., Martin,J., Moore,B., Schellenberg,K., Steptoe,M., Tan,F., Theising,B., White,Y., Wylie,T., Waterston,R. and Wilson,R.
WashU-Merck EST project 1997
                                                                                                                                                                                                                                                                                                                                                        High quality sequence stop: 391.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Wilson RK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota;
Mammalia; F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AA421208 402 bp mRNA EST 16-OCT-1997 zu05h05.rl Soares_testis_NHT Homo sapiens cDNA clone IMAGE:731001 5' similar to TR:G927779 G927779 SUPPRESSOR OF MIF2 MUTATIONS. ;;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA421208.1 GI:2100033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 402)
                   Double-stranded cDNA was ligated to Eco RI adaptors
                                                                                                                                                                                                                   /db_xref="taxon:9606"
/clone="IMAGE:731001"
                                                                                                                                                                                                                                                                   /organism="Homo sapiens"
/db_xref="GDB:5927801"
                                                                                                                                                                                                                                                                                                                 1. .402
                                                                                                                                                 /lab_host="DH10B"
                                                                                                                                                                              /sex="male"
                                                                                                                                                                                          /clone_lib="Soares_testis_NHT"
                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                contact the
```

```
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq_name: gb_est13:AA896203
                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Align seg 1/1 to: AA421208 from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-484-964-2 x AA421208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity: 100.000
                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                    VERSION
                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             143 GGAAGGTGAATATATAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    93 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTGGGGGGATAAGAA 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                          vx62d07.rl Stratagene mouse macrophage (#937306) Mus musculus cDNA clone IMAGE:1279789 5' similar to SW:SM33_HUMAN Q93068 UBIQUITIN-LIKE PROTEIN SMT3C ;, mRNA sequence.
                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 426)

Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                                                           AA896203
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
                                                                                                                                                                                                                                                                                                                        Mus musculus
                                                                                  Unpublished (1996)
Contact: Marra M/Mouse EST Project
                                                                                                                                                  Waterston, R.
                                                                                                                                                                                                                                                                                                                                                                                       AA896203.1 GI:3032596
                                                                                                                            The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                            house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of the modified pT737 vector. Library went through one round of normalization to Cot5, and was constructed by Bento Soares and M. Fatima Bonaldo. " a 74 c 105 g 89 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  522.00
5.168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             426 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           to: 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   06-APR-1998
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          alignment_block:
                                                                                                                                                          seq_name: gb_est15:AI047190
                                                                                     DEFINITION
                                                                                                                          seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-484-964-2 x AA896203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity: 100.000
                 VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Align seg 1/1 to: AA896203
                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              116 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTAGGCGATAAGAA 165
                                                                                                                                                                                                                                                                       316
                                                                                                                                                                                                                                                                                                                                                                                                                      216 TACATTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA 265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      166 GGAAGGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGA 215
                                                                                                                                                                                                                                       101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                        84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                    67
                                                                                                                                                                                                                                                                                                                                                                                                                                                             51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                AGGTCAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGAGG 365
                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                   uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Fax: 314 286 1810 Email: mouseest@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Seq primer: -28m13 rev1 ET from Amersham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Quality:
                                                     A1047190 429 bp mRNA EST 08-7UL-1998 uh62404.rl Soares_embryonic_stem_cell_NMES Mus musculus CDNA clone IMAGE:1749991 5' similar to SW:SM33_HUMAN Q93068 UBIQUITIN-LIKE PROTEIN SMT3C ;, mRNA sequence.
AI047190
AI047190.1 GI:3295477
EST.
                                                                                                                                                                                                    418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    quality sequence stop: 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  522.00
5.168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone_lib="Stratagene mouse macrophage (#937306)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone="IMAGE:1279789"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /tissue_type="macrophage"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           to: 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
                                                                                                                                                                                                                                                                                   415
                                                                                                                  08-JUL-1998
```

KEYWORDS

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Align seg 1/1 to: AI047190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-484-964-2 x AI047190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                   250 TACTGTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGA 299
                                                                                                                                                                                                                                                             150 GGAAGGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGA 199
                                                                                                                                                        200 TACATTTCAAAGTGAAAATGACAACACCTCAAGAAACTCAAAGAATCA 249
                                                                                                                                                                                                                                                                                                                                                               100 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTAGGCGATAAGAA 149
67 uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
                                                                                 51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                      34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                        17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                          1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Rodentia; Sciurognathi; Muridae; Mus. 1 (bases 1 to 429)

Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucabb,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and Waterston,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           High quality sequence stop: 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: mouseest@watson.wustl.edu
This clone is available royalty free through LLNL; contact the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Seq primer: -28m13 rev2 ET from Amersham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Washington University School of MedicineP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MGI:961803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Contact: Marra M/Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          140 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               constructed by Bento Soares and M.Fatima Bonaldo 76 c 109 g 104 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector. Library went through two rounds of normalization, and was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 522.00
5.168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /Note="Organ: bone marrow; Vector: pT7T3D-Pac (Pharmacia) with a modified polylinker; Site_1: Not I; Site_2: Eco RI; lst strand cDNA was primed with a Not I - oligo(dT) primer [5'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone="IMAGE:1749991"
/clone=llb="Soares_embryonic_stem_cell_NMES"
/cell_type="embryonic stem cell"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    double-stranded cDNA was ligated to Eco RI adaptors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         from: 1 to: 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps:
```

```
alignment_block:
                                                                                                                                                                                                          alignment_scores:
                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
     Align seg 1/1
                                                  US-09-484-964-2 x BF978928
                                                                                                                       Quality: 522.00
Ratio: 5.168
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  seq_name: gb_est95:BF978928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    400 GTT 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            350 AAGAAGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCACTCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               300 AGGTCAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGGAATGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           High quality sequence stop: 430.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Plate: LLCM1175 row: c column: 02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tissue Procurement: ATCC/DCTD/DTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mRNA sequence.
BF978928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               602147602F1 NTH_MGC_62 Homo sapiens cDNA clone IMAGE:4306489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Email: cgapbs-r@mail.nih.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unpublished (1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mammalia; Eutheria; Primates; Catarrhini; Hominidae; 1 (bases 1 to 430)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BF978928.1 GI:12346143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cDNA Library Preparation: CLONETECH Laboratories, Inc. cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
     to: BF978928
                                                                                                                                                                                                                                                                                                          134 a
                                                                                                                                                                                                                                                                                          /clone_lib="NIH_MGC_62"
//tissue_type="melanotic melanoma, high MDR"
//tissue_type="melanotic melanoma, high MDR"
/lab_nost="DH10B (Tl phage-resistant)"
/note="Organ: skin; Vector: pDNR-LIB (Clontech); Site_1:
SfiI (ggccgcctcggcc); Site_2: SfiI (ggccattatggcc);
Double-stranded cDNA was prepared from cell line RNA. 5'
and 3' adaptors were used in cloning as follows: 5'
adaptor sequence: 5'-CACGGCCATATGGCC-3' and 3' adaptor
sequence: 5'-ATTCTAGAGCCGAGGGCCGACATG-dT(30)BN-3'
(where B = A, C, or G and N = A, C, G, or T). Average
insert size 1.75 kb (range 0.9-4.0 kb). 15/15 colonies
contained inserts by PCR. This library was enriched for
full-length clones and was constructed by Clontech
Laboratories (Palo Alto, CA)."
34 a 80 c 119 g 97 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:9606"
/clone="IMAGE:4306489"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       430 bp
from: 1 to: 430
                                                                                                                       Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mRNA
                                                                                                                                                                            Length:
                                                                                                                                                  Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5,
```

1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17

```
seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq_name: gb_est10:AA682161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  367 AAGAAGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACA 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17
                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGTCAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TACTGTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA682161 431 bp. mRNA EST 05-DE vul3e09.rl Barstead mouse myotubes MPLRB5 Mus musculus IMAGE:1180552 5' similar to TR:G927779 G927779 SUPPRESS MUTATIONS.; mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T
Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
                                                                                                                                                                                                                                                                                                                               Tel: 314 286 1800
Fax: 314 286 1810
Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                         WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Contact: Marra M/Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The WashU-HHMI Mouse EST Project Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Theising, B., Wylie, T., Lennon, G., Soares, B., Wilson, R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AA682161.1 GI:2663193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nouse mouse.
                                                                                                                                                                                                                                                                                                             MGI:638400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 431)
                                                                                                                                                                                                                                          primer: -28m13 rev2 ET from Amersham
h quality sequence stop: 425.
Location/Qualifiers
/lab_host="DH108"
/lab_host="PH108"
/note="Vector: pT73D-Pac (Pharmacia) with a modified
/note="Vector: Site_1: EcoRI; Site_2: NotI; 1st strand cDNA
was primed with a Not I - oligo(dT) primer [5'
                                                                                     /db_xref="taxon:10090"
/clone="IMAGE:1180552"
/clone_lib="Barstead mouse myotubes MPLRB5"
/cell_line="C2C12"
                                                                                                                                                                                 /strain="C3H"
                                                                                                                                                                                                   /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          musculus cDNA clone SUPPRESSOR OF MIF2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     05-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
           COMMENT
```

```
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                    seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                        seq_name: gb_est7:AA423388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-484-964-2 x AA682161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Align seg 1/1 to:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity: 100.000
                                                                                                                                                                                                                        ORGANISM
                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          171 GGAAGGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGA 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTAGGCGATAAGAA 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TACTGTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGA 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TACATTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA 270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTT 423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGTCAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG
                                                                                                                                                                                                                                                                                                                                         AA423388 434 bp mRNA EST 16-OCT-1997 ve39b12.rl Soares_mammary_gland_NbMMG Mus musculus cDNA clone IMAGE:820511 5' similar to TR:G927779 G927779 SUPPRESSOR OF MIF2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Quality:
The WashU-HHMI Mouse EST Project
Unpublished (1996)
Contact: Marra M/Mouse EST Project
                                                                           Marra, M., Hillier, L., Allen, M., Bowles, M., Dietrich, N., Dubuque, T., Geisel, S., Kucaba, T., Lacy, M., Le, M., Martin, J., Morris, M., Schellenberg, K., Steptoe, M., Tan, F., Underwood, K., Moore, B., Theising, B., Wylie, T., Lennon, G., Soares, B., Wilson, R. and
                                                                                                                                                             Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
1 (bases 1 to 434)
                                                                                                                                                                                                                                                                  EST
                                                                                                                                                                                                                                                                                                          AA423388
                                                              Waterston, R
                                                                                                                                                                                                                                                                                     AA423388.1 GI:2102204
                                                                                                                                                                                                                                                                                                                        MUTATIONS. ; , mRNA sequence.
                                                                                                                                                                                                                                             house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA682161 from: 1 to: 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          characteristic muscle proteins.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         rapidly, forming contractile myotubes and producing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  522.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5.168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   77 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Identity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   116 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             84
                                                                                                                                                                                          Mus.
```

FEATURES

383 GTT 385

```
alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Quality: 522.00
Ratio: 5.168
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Align seg 1/1 to: AA423388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-484-964-2 x AA423388
                                       333 AAGAAGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGGTCACTCGACG 382
                                                                                                                                                                                                                                                                                                                                                                 183 TACATTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               133 GGAAGGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGA
101 Val 101
                                                                 84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                  67 uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG
                                                                                                                                                                                                                                                                                          51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                    34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     83 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTAGGCGATAAGAA 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                   AGGTCAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGAGG 332
                                                                                                                                                                                                                                                           TACTGTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Email: mouseest@watson.wustl.edu
This clone is available royalty free through LLNL ; contact the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Tel: 314 286 1800 Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WashIngton University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Ld
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MGI:488791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IMAGE Consortium (info@image.llnl.gov) for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             138 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         primer: -28m13 rev2 ET from Amersham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  quality sequence stop: 422.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bonaldo."
a 82 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T 3'); double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector.
RNA provided by Dr. Minoru Ko, Wayne State Univ. Library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="Organ: mammary gland; Vector: pT7T3D-Pac (Pharmacia ) with a modified polylinker; Site_1: Not I; Site_2: Eco RI; 1st strand cDNA was primed with a Not I - oligo(dT)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KNA provided by Dr. Minoru Ko, Wayne State Univ. Librar constructed and normalized by Bento Soares and M.Fatima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               primer [5'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /tissue_type="mammary gland"
/dev_stage="4 weeks"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Mus musculus"
/strain="C57BL/6J"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone_lib="Soares_mammary_gland_NbMMG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="taxon:10090"
/clone="IMAGE:820511"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   from: 1 to: 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        102 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           112 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         further information.
                                                                                                                                                                                                        84
                                                                                                                                                                                                                                                              282
```

ORIGIN BASE COUNT

17

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq_name: gb_est23:AI646104
                                                                                                                                                                                                                                                                                                                                   Align seg 1/1 to reverse of: AI646104 from: 1
                                                                                                                                                                                                                                                                                                                                                                                           US-09-484-964-2 x AI646104/rev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
338 TACATTTCAAAGTGAAAATGACAACATCTCAAGAAACTCAAAGAATCA
                                                                                                                                                                                                                       438 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTAGGCGATAAGAA
                                                                                                           388 GGAAGGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGA
                          34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                      17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                         1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: cgapbs-r@mail.nih.gov
This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A1646104 438 bp mRNA EST 29-APR-1999 ub77a05.x1 Soares_mammary_gland_NMLMG Mus musculus cDNA clone IMAGE:1383728 3' similar to SW:SW33_HUMAN Q93068 UBIQUITIN-LIKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  High quality sequence stop: 389
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Possible reversed clone: similarity on wrong strand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      data is from the 3'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This clone was previously sequenced on the 5' end only, this new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MGI:906196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tumor Gene Index
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus (bases 1 to 438)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AI646104.1 GI:4724579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROTEIN SMT3C ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             127 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               polylinker; 1st strand cDNA was prepared from mammary gland tissue from a lactating female, and was then primed with a Not I - oligo(dT) primer. Double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector. Library is normalized. Library was constructed by Bento Soares and M. Fatima Bonaldo. " a 86 c 68 g 157 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Mus musculus"
/db_xref="taxon:10090"
/db_xref="taxon:10090"
/clone="IMAGE:1383728"
/clone_lib="Soares_mammary_gland_NMLMG"
/sex="female (lactating)"
/tissue_type="mammary_gland"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    522.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Vector: pT7T3D-Pac (Pharmacia) with a modified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps: 0
Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
                                                                                                                                                                                                                                                                                                                                   to: 438
                                                                                                                                                                                                                       . 389
                                                                                                           339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cDNA was
```

522.00

Length:

101

```
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq_name: gb_est86:BF323866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    238 AGGTCAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGAGG 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  288 TACTGTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTT 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Howe, D.K., Stamper, S., Tang, K., Sibley, L.D., Clifton, S., Marra, M., Hillier, L., Pape, D., Martin, J., Wylie, T., Theising, B., Bowers, Y., Gibbons, M., Ritter, E., McCann, R., Blistain, A., Bennet, J., Schmitt, A., Ronko, I., Tsagareishvili, R., Fedele, M., Belaygorod, L., Franklin, C., Carr, L.M., Grow, A., Maguire, L., Wadkins, J., Richey, J., Waterston, R. and Wilson, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SnEST4a20f08.yl cSn 1 S neurona invitro merozoite cDNA Sarcocystis neurona cDNA 5' similar to SW:SM33_HUMAN Q93068 UBIQUITIN-LIKE PROTEIN SMT3C ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sarcocystis neurona EST project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sarcocystis neurona
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Email: est@watson.wustl.edu
Contact Daniel K. Howe (dkhowe2@pop.uky.edu) for further
information relating to organism, libraries, or clone availability.
Seq primer: -40RP from Gibco____
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Daniel K. Howe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sarcocystis neurona EST project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sarcocystidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Alveolata; Apicomplexa; Coccidia; Eimeriida;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sarcocystis neurona.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BF323866.1 GI:11273469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 439)
                               139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              quality sequence stop: 376.
Location/Qualifiers
                                                                                                       /note="Vector: pBluescript SK-; Site_1: EcoRI; Site_2: XhOI; The library was constructed by Dan Howe, University of Kentucky. CDNAs were synthesized from poly(A)+ RNA by oligo d(T) priming and directionally cloned into the Uni-ZAP XR lambda vector. The library was mass excised as phagemids and rescued in SOLR cells. The plasmid library was recovered from the SOLR cells and transformed in mass into DH10B cells for sequencing. WARNING: the
                         in mass into DH10B cells for sequencing. WARNING: the library contains a small percentage of cDNAs derived from the bovine host cells."

81 c 98 g 121 t
                                                                                                                                                                                                                                                                                                                                                                                                                      /strain="Sn3"
/db_xref="taxon:42890"
                                                                                                                                                                                                                                                                                                                                     /dev_stage="merozoite"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                         /clone_lib="cSn 1 S neurona invitro merozoite cDNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Sarcocystis neurona"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     439 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sarcocystis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MO 63108,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21-NOV-2000
```

alignment\_scores:

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seq_name: gb_est10:AA636685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq_documentation_block:
                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Align seg 1/1 to: BF323866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-484-964-2 x BF323866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
FEATURES
                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           112 GGAAGGAGAGTATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 312 AAGAAGATGTGATTGAAGTTTATCAGGAACAAACAGGGGGTCATTCAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          262 AGGTCAGAGAATTGCTGATAATCACACTCCAAAAGAACTGGGAATGGAGG 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  212 TACTGTCAAAGACAGGGAGTTCCCATGAATTCACTCAGGTTTCTCTTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62 ATGTCTGACCAGGAAGCAAAACCTTCAACCGAGGACTTGGGGGGATAAGAA 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Quality:
Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       vr15f02.rl Barstead mouse myotubes MPLRB5 Mus musculus cDNA clone IMAGE:1120731 5' similar to TR:G927779 G927779 SUPPRESSOR OF MIF2
                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 442)
Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T.,
Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EST
                                                                                                                                                                                                                                                                                               Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AA636685.1 GI:2560464
                   seq primer: -28m13 rev2 ET from Amersham
High quality sequence stop: 441.
                                                                                                                                                              Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                       4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
                                                                                                                                                                                                                               WashU-HHMI Mouse EST Project
Washington University School of MedicineP
                                                                                                                                                                                                                                                                            Contact: Marra M/Mouse EST Project
                                                                                                                                                                                                                                                                                                                            The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                  Waterston, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MUTATIONS. ;, mRNA sequence
                                                                                   This clone is available royalty-free through LLNL; contact the THAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              house mouse.
                                                                                                                                        Email: mouseest@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5.168
  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            442 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  from:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chordata; Craniata; Vertebrata; Euteleostomi; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  to: 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22-OCT-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cDNA clone
```

```
KEYWORDS
                                                                                                                                         ACCESSION
                                                                                                                                                                                  seq_documentation_block:
LOCUS BE482568
                                                                                                                                                                                                                                     seq_name: gb_est75:BE482568
                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Align seg 1/1 to: AA636685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-484-964-2 x AA636685
                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity: 100.000
                                                                                                                                                                                                                                                                              378 GTT 380
                                                                                                                                                                                                                                                                                                                   101 Val 101
                                                                                                                                                                                                                                                                                                                                                328 AAGAAGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGGTCACTCGACG 377
                                                                                                                                                                                                                                                                                                                                                                                                                         278 AGGTCAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGAGG 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     228 TACTGTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGA 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               178 TACATTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         128 GGAAGGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGA 177
                                                                                                                                                                                                                                                                                                                                                                                  84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                              67 uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17 sGlnGlyGluTyrIleLysLeuLysVallleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTAGGCGATAAGAA 127
                                                                                                    EST
Bovidae; Bovinae; Bos.
        Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                           Bos taurus
                                                                                                                                         BE482568
                                                                                                                                               168404 BARC 5BOV Bos taurus cDNA 5', mRNA sequence
                                                                                 COW.
                                                                                                                  BE482568.1 GI:9602101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          142 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         522.00
5.168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rapidly, forming contractile myotubes and producing characteristic muscle proteins. "82 c 99 g 119 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="taxon:10090"
/clone="IMAGE:1120731"
/clone_lib="Barstead mouse myotubes MPLRB5"
/cell_line="C2C12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Mus musculus"
/strain="C3H"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /lab_host="DH10B"
                                                                                                                                                                          444 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     from: 1 to: 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Identity: 99.010
                                                                                                                                                                              mRNA
```

SOURCE

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Align seg 1/1 to: BE482568 from: 1 to: 444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-484-964-2 x BE482568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                               346
396 GTT 398
                                              101 Val 101
                                                                                                                                                                                      296 AGGTCAGAGAATTGCTGATAATCACACTCCAAAAGAACTGGGAATGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 146 GGAAGGAGAGTATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA 195
                                                                                                                 84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                     246 TACTGTCAAAGACAGGGAGTTCCCCATGAATTCACTCAGGTTTCTCTTTGA
                                                                                                                                                                                                                                                                                                                                                                                     196 TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA
                                                                                                                                                                                                                               67 uGlyGlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluG
                                                                                                                                                                                                                                                                                                               51 TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl
                                                                                                                                                                                                                                                                                                                                                                                                            34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96 ATGTCTGACCAGGAAGCAAAACCTTCAACCGAGGACTTGGGGGATAAGAA 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                       AAGAAGATGTGATTGAAGTTTATCAGGAACAAACAGGGGGTCATTCAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FORWARD: AGGAAACAGCTATGACCAT
BACKWABD: GTTTTCCCAGTCACGACG
Plate: 11 row: C column: 20
Seg primer: ATTTAGGTGACACTATAG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Single pass sequencing. Bases called and alt_trimmed with phred v0.980904.e. Vector identified by cross_match with the -minscore 18 vn -minmatch 12 options.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           USDA, ARS, Beltsville Agricultural Research Center
Bdlg. 200 Rm 2A, Beltsville, MD 20705, USA
Tel: 301 504 8416
Fax: 301 504 8414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 (bases 1 to 444)
Sonstegard, T.S., Capuco, A.V., Van Tassell, C.P., Ashwell, M.S. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PCR PRimers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gland cDNA library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mapping of Expressed Sequence Tags from a normalized bovine mammary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Sonstegard TS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: tads@lpsi.barc.usda.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                139 а
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tissues at eight physiological, developmental, and disease states."

86 c 107 g 112 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="Vector: pCMV SPORT6; Site_1: XbaI; Site_2: XhoI; Library made from pooled mRNA isolated from mammary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /db_xref="taxon:9913"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       522.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /tissue_type="pooled"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone_lib="BARC 5BOV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Bos taurus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Identity: 99.010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     107 g
                                                                                          395
                                                                                                                                                                                                                                                                                                                                      67
                                                                                                                                                                                                                                                                                     295
```

		Same.
•		
	eth eye	
		1
		1
		1

```
REFERENCE
                                                                                                                                                                                             SOURCE
                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                               seq_documentation_block:
LOCUS HSU72722
                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                              seq_name: gb_pr10:HSU72722
                                                                                                                                                                                                                                                                                                                                                                                           gb_ov:AB036430
                                                                                                                                                                                                                                                                                                                                                                                                         gb_htg17:AC079354
                                                                                                                                                                                                                                                                                                                                                                                                                              gb_ov:XLSUMO
                                                                                                                                                                                                                                                                                                                                                                                                                                                gb_htg14:AC068786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gb_pr3:AC011450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9b_pr5:AL135926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gb_htg21:AL359981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gb_htg17:AC084066
gb_htg22:AL513282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gb_pat1:AX021844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9b_om:AF242526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gb_pr10:HSU67122
gb_pr10:HSU38784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WARN: XGAPEXT and YGAPEXT must be equal. Assuming YGAPEXT=XGAPEXT=60.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WARN: XGAPOP and YGAPOP must be equal. Assuming YGAPOP-XGAPOP-60.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gb_pat1:AR087051
gb_pr10:HSU83117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9b_pr7:BC006462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gb_pr9:HSSMT3C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gb_pr10:HSU72722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 score_list:
                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gb_pr10:HSU61397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gb_rol:AF033353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Database sequences: 1344157
Database length: -856060004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query: US-09-484-964-2
Query length: 101
                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Search time (sec): 1073.880000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Database:
                                                                                                 AUTHORS
                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Search information block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Command line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         About: Results were produced by the GenCore software, version 4.5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Date: Aug 15, 2001 6:39 PM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM of: US-09-484-964-2 to: GenEmbl:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -ICPU=3 -LONGLOG -NO_XLPXY -WAIT -THREADS=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MODEL=frame+_p2n.model -DEV=xlp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Copyright (c) 1993-2000 Compugen Ltd.
                                  Matunis,M.J., Coutavas,E. and Blobel,G. A novel ubiquitin-like modification modulates the partitioning of the ran-GTPase-activating protein RangAP1 between the cytosol and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenEmbl:*
                    the nuclear pore complex J. Cell Biol. 135 (6 Pt
                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 306)
                                                                                                                                                                                                                                                    Human gap modifying protein 1 mRNA, complete cds.
                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                             human.
                                                                                                                                                                                                                                U72722.1 GI:1703502
                                                                                                                                                                                                                                                                                           HSU72722
                                                                                                                                                                                                                                                                                                                                                                               Orig ZSCORE
83.00 1634.68
83.00 1632.38
83.00 1632.38
83.00 1629.71
83.00 1629.50
83.00 1627.98
83.00 1627.98
83.00 1427.98
83.00 1427.98
83.00 1427.98
83.00 1799.28
43.00 799.28
43.00 799.28
43.00 799.28
43.00 799.28
43.00 799.28
43.00 799.28
43.00 799.28
43.00 799.28
43.00 799.28
43.00 799.28
43.00 799.28
43.00 799.28
43.00 799.28
43.00 603.70
33.00 603.70
33.00 603.70
33.00 603.70
33.00 603.70
33.00 603.70
                                                                                                                                                                                                                                                                                     306 bp
          (6 Pt 1), 1457-1470 (1996)
                                                                                                                                                                                                                                                                                       mRNA
                                                                                                                                                                                                                                                                                                                                                                                               2.8e-65
1.6e-60
2.6e-36
2.8e-36
3.4e-35
2.2e-25
2.2e-25
3.5e-25
2.5e-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       out_format : pfs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.9e-82
1.9e-82
8.5e-72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.3e-82
1.5e-82
1.6e-82
1.6e-82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4.5e-83
8.1e-83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .1e-82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EScore Len
                                                                                                                                                                                                                                                                                                                                                                 106168 ! AC011450 Homo sapiens chromd
178733 ! AC068786 Homo sapiens chromd
466 ! Z97073 Xenopus laevis SUMO-1 mH
160939 ! AC079354 Homo sapiens chromd
670 ! AB036430 Oncorhynchus mykiss SU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Documentation

1 U72722 Human gap modifying prot
10 1 X99586 H. Sapiens mRNA for SMT30
10 1 U67122 Human ubiquitin related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ! U83117 Human sentrin mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AF242526 Cervus nippon sentrin
AX021844 Sequence 18 from Paten
1 AC084066 Mus musculus clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                              AL513282 Homo sapiens chromo
AL359981 Homo sapiens chromo
AL135926 Human DNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      U61397 Human ubiquitin-homolog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        U38784 Human ubiquitin-like pr
AF033353 Mus musculus ubiquiti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BC006462 Homo sapiens, ubiquit
AR087051 Sequence 1 from pater
                                                                                                                                                                                                                                                                             14-JAN-1997
                                                                                                                  REFERENCE
                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                         Seq_documentation_block:
                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                              VERSION
                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                            seq_name: gb_pr9:HSSMT3C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alignment_scores:
  MEDLINE
                      JOURNAL
                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Align seg 1/1 to: HSU72722 from: 1 to: 306
                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-484-964-2 x HSU72722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                       255 AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACAGTT 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                155 GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       105 CTTCAAAGTGAAAATGACCAACATCTCAAGAAACTCAAAGAATCATACT 154
                                                                                                                                                                                                                                                                                                                                                                                           85 uAspVallleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19 GlyGluTyrIleLysLeuLysVallleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 55 GGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA 104
SMT3A, a human homologue of the S. cerevisiae SMT3 gene, maps to chromosome 21qter and defines a novel gene family Genomics 40 (2), 362-366 (1997) 97237059
                                                                           Lapenta, V., Chiurazzi, P., van der Spek, P., Pizzuti, A., Hanaoka, F.
                                                                                                                                                                                                                                                H.sapiens mRNA for SMT3C protein. X99586
                                                                       and Brahe, C.
                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bass 1 to 590)
                                                                                                                                                                                             SMT3C gene; suppressor; ubiquitin-like protein.
                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                            X99586.1 GI:1770520
                                                                                                                                                                                                                                                                                       HSSMT3C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
Submitted (27-SEP-1996) Laboratory of Cell Biology, Rockefeller
University, 1230 York Avenue, New York, NY 10021, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97133418
2 (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matunis, M.J., Coutavas, E. and Blobel, G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 306)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       112 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="gap modifying protein 1"
/protein_id=AaB40390.1"
/db_xref="GI:1703503"
/translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
KKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
1 48 c 75 g 71 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="GMP1; covalently associated with Ran GTPase
activating protein RanGAP1; ubiquitin-like protein"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. .306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         83.00
                                                                                                                                                                                                                                                                                 590 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _line="HeLa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Identity:
                                                                                                                                                                                                                                                                                   mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length:
                                                                                                                                                                                                                                                                             PRI.
```

19-MAR-1997

```
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq_documentation_block:
LOCUS HSU67122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seq_name: gb_pr10:HSU67122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Align seg 1/1 to: HSSMT3C from: 1 to: 590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-484-964-2 \times HSSMT3C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                       ORGANISM
      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      146 CTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            246 CAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGGAATGGAGGAAGA 295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           35 spheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96 GGTGAATATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19 GlyGluTyrIleLysLeuLysVallleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              69 GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTTGAGGGT 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chiurazzi, P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (26-JUL-1996) P. Chiurazzi, Universita' Cattolica - Roma, largo F. Vito 1, I- 00168 Roma, ITALY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human ubiquitin-related protein SUMO-1 mRNA, complete cds.
Mahajan, R., Delphin, C., Guan, T., Gerace, L. and Melchior, F.
                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                            U67122.1 GI:1762972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 590)
                                                                                                                                                                                                                                                                                                      human
                                                                    (bases 1 to 816)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="SMT3C protein"
/protein_id="CAA67898.1"
/protein_id="CAA67898.1"
/db_xref="G1:1770521"
/db_xref="SWISS-PROT:Q93068"
/translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
/translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
KKIKESYCQRQGVPMNSLRFLFEGGGRADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
KKIKESYCQRQGVPMNSLRFLFEGGGRADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
KKIKESYCQRQGVPMNSLRFLFEGGGRADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
113 c 126 g 170 t 13 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /function="suppressor of MIF2 which encodes a centromere protein" % \left( \frac{1}{2}\right) =\frac{1}{2}\left( \frac{1}{2}\right) +\frac{1}{2}\left( \frac{1}{2}\right) +\frac{1}{2}\left(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="ubiquitin-like protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="SMT3C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /tissue_type="brain"
12. .347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /dev_stage="foetus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             83.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           113 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            816 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15-FEB-1997
```

```
MEDLINE
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                              seq_name: gb_pr10:HSU38784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Quality: 83.00
Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Align seg 1/1 to: HSU67122 from: 1 to: 816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                        SOURCE
                                                                                                                  DEFINITION
ACCESSION
                                                                                                                                                                           seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-484-964-2 x HSU67122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                               KEYWORDS
                                                                                                  VERSION
                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     185 CTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                        235 GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT 284
                                                                                                                                                                                                                                                                                                                                                                                                                                    52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19 GlyGluTyrIleLysLeuLysVallleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                     69 GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                             85 uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A small ubiquitin-related polypeptide involved in targeting RanGAP1 to nuclear pore complex protein RanBP2 (21), 97-107 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (16-AUG-1996) Department of Cell Biology, The Scripps Submitted (16-AUG-1996) The Scripps Research Institute, 10666 N. Torrey Pines Road, La Jolla, CA 92037,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mahajan,R.K., Guan,T., Delphin,C., Gerace,L. and Melchior,F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97148692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Research Institute, 10666 N. Torrey Pines Road,
                                         Homo sapiens
                                                                                                  U38784.1 GI:1574947
                                                                                                                                   Human ubiquitin-like protein mRNA, complete cds.
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                              HSU38784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 816)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            235 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
153 c 173 g 255 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ubiquitin-related protein; similar to UBL1 encoded by GenBank Accession Number U38784, PIC1 encoded by GenBank Accession Number U61397 and GMP1 encoded by GenBank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Accession Number U72722"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="IMAGE Consortium Clone ID: 49768, 51818, 199507"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="AAC50996.1"
/protein_id="AAC50998.1"
/db_xref="GI:1762973"
/translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="conjugated post-translationally to RanGAP1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="SUMO-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=
                                                                                                                                                                1017 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Identity:
                                                                                                                                                                     mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           234
                                                                                                                                                                         16-OCT-1996
```

```
JOURNAL
MEDLINE
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
            SOURCE
                                                                                                                                                                       seq_name: gb_ro1:AF033353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
                                                                                                                         seq_documentation_block:
LOCUS AF033353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                               KEYWORDS
                                                   VERSION
                                                                    ACCESSION
                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Align seg 1/1 to: HSU38784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-484-964-2 x HSU38784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Quality: 83.00
Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                       271
                                                                                                                                                                                                                                                                                                                                                      221
                                                                                                                                                                                                                                                                                                                     69
                                                                                                                                                                                                                                                                                                                                                                                       52
                                                                                                                                                                                                                                                                                                                                                                                                                                                            35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19
                                                                                                                                                                                                                                             85 uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                   GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGA 320
                                                                                                                                                                                                                                                                                                                                                        GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT
                                                                                                                                                                                                                                                                                                                                                                     ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                          sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyGluTyrTleLysLeuLysValIleGlyGlnAspSerSerGluIleHi
                                                                                                                                                                                                              1 (bases 1 to 101/)
Shen, Z., Pardington-Purtymun, P.E., Comeaux, J.C., Moyzis, R.K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (16-OCT-1995) Zhiyuan Shen, Life Sciences Division, Alamos National Lab, MS M888, Los Alamos, NM 87545, USA Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               UBL1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chen, D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Shen, Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RAD51/RAD52 proteins
Genomics 36 (2), 271-279-(1996)
Mus musculus
                                                                       complete cds. AF033353
                                                                                                       Mus musculus ubiquitin-homology domain
                                                   AF033353.1 GI:2645736
                house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 1017)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 1017)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a human ubiquitin-like protein associating with human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="This cDNA was cloned with the yeast two hybrid system. The protein interacts with human RAD51 and RAD52 proteins in yeast"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="AAC50733.1"
/db_xref="GI:1574948"
/translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
KKLKESYCQRQGVPMMSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       author"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="similar to ubiquitin and to yeast Smt3p (suppressor
of MIF2); Method: conceptual translation supplied by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                         1187 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 213 g
                                                                                                                         mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     to: 1017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   314 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps:
                                                                                                       protein (Ubl1) mRNA,
                                                                                                                         ROD
                                                                                                                                                                                                                                                                                                                                                        270
                                                                                                                                                                                                                                                                                                                                                                                         89
                                                                                                                                                                                                                                                                                                                                                                                                                          220
                                                                                                                                                                                                                                                                                                                                                                                                                                                              52
                                                                                                                         06-FEB-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SoJ
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                         seq_documentation_block:
LOCUS HSU61397
                                    DEFINITION
VERSION
                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Align seg 1/1 to: AF033353 from: 1 to: 1187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-484-964-2 x AF033353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                173 GGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGATACA
                                                                                                                                                                                                                                                                                                                273 GTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGAAGGT
                                                                                                                                                                           85 uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                  52 ysGlnArgClnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19 GlyGluTyrIleLysLeuLysValIlleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                              35 spheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC
                                                                                                                                                           AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCACTCGACGGTT 421
                                                                                                                gb_pr10:HSU61397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The ubiquitin-homology gene PIC1: characterization of mouse (Pic1) and human (UBL1) genes and pseudogenes Genomics 47 (1), 92-100 (1998) 98126440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus 1 (bases 1 to 1187)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hospital, 8th floor, Guy's Tower, London SE19RT, UK
Location/Qualifiers
1. .1187
                  Human ubiquitin-homology U61397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (07-NOV-1997) Medical & Molecular Genetics, Guy's
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Howe, K., Freemont, P.S. and Solomon, E. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Solomon, E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Howe, K., Williamson, J., Boddy, N., Sheer, D.,
U61397.1 GI:1518693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 1187)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="ubiquitin-homology domain protein"
/protein_id="AAC39959.1"
/db_xref="G1:2645737"
/db_xref="G1:2645737"
/tanslation="MSDOBAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
/translation="MSDOBAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
KKIKESYCQRQGVPMNSLRFIFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
a 216 c 267 g 354 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="Ubl1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /map="C2-3"
l. .1187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="Ubl1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /strain="ICR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note="Pic1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /chromosome="1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       83.00
                                                           1223 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps:
Percent Identity:
                                                             mRNA
                                        nRNA PRI 14-JAN-1997 domain protein PIC1 mRNA, complete cds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83
0
100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Freemont, P. and
                                                                                                                                                                                                                                        372
                                                                                                                                                                                                                                                                                                                    322
                                                                                                                                                                                                                                                                                                                                                                                               272
                                                                                                                                                                                                                                                                                                                                                                                                                                    52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           222
```

```
SOURCE
                   KEYWORDS
                                         VERSION
                                                               ACCESSION
                                                                                                     DEFINITION
                                                                                                                                        seq_documentation_block:
                                                                                                                                                                                    seq_name: gb_pr7:BC006462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Align seg 1/1 to: HSU61397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-484-964-2 x HSU61397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                       350 CAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGA 399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            250 CTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                     200 GGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA
                                                                                                                                                                                                                                                                                                                                               69 GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                 52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19
                                                                                                                                                                                                                                                                                                                                                                                             GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT 349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Quality:
Ratio:
                                     BC006462.1
                                                                                            Homo sapiens, ubiquitin-like 1 (sentrin),
                                                                             complete cds.
                                                                                                                         BC000462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (20-JUN-1996) Somatic Cell Genetics, Imperial Cancer Research Fund, 44 Lincoln's Inn Fields, London WC2A 3PX, UK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Boddy,M.N., Howe,K., Etkin,L.D., Solomon,E. and Freemont,P.S. PIC 1, a novel ubiquitin-like protein which interacts with the PML component of a military other components.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Howe, K., Boddy, M.N., Etkin, D.E., Solomon, E. and Freemont, P.S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96400311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Oncogene 13 (5), 971-982 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  promyelocytic leukaemia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 1223)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 1223)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           371 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="GI:1518694"
/translation="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
KKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
209 c 268 g 375 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="ubiquitin-homology domain protein PIC1"
/protein_id="AAB40388.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; Metazoa; Chordata; Craniata; Vertebrata; Eutele
Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /tissue_type="placenta"
146. .451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             83.00
1.000
                                                                                                                         1227 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    to: 1223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Craniata; Vertebrata; Euteleostomi;
                                                                                                                    PRI
                                                                                                clone MGC:2095, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        52
                                                                                                                13-APR-2001
```

t

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                               Align seg 1/1 to: BC006462
                                                                                                                                                                                                                                                                                                                                                                    US-09-484-964-2 x BC006462
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                    236 CTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT 285
                                                                                                                                                                                             186 GGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                 35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC
52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly
                                                                                                                                                                                                                             19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov Series: IRAL Plate: 8 Row: f Column: 12.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Steven Jones, Jennifer Asano, Ian Bosdet, Yaron Butterfield, Susanna Chan, Readman Chiu, Chris Fjell, Erin Garland, Ran Guin, Letticia Hsiao, Martin Krzywinski, Reta Kutsche, Oliver Lee, Soo Sen Lee, Victor Ling, Carrie Mathewson, Candice McLeavy, Steven Ness, Pawan Pandoh, Anna-Liisa Prabhu, Parvaneh Saeedi, Jacqueline Schein, Duane Smailus, Michael Smith, Lorraine Spence, Jeff Stott, Michael Thorne, Miranada Tsai, Natasja van den Bosch, Jill Vardy, George Yang, Scott Zuyderduyn, Marco Marra.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDNA Library Preparation: Rubin Laboratory
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Genome Sequence Centre,
BC Cancer Agency, Vancouver, BC, Canada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NIH-MGC Project URL: http://mgc.nci.nih.gov
Contact: Robert Strausberg, Ph.D.
Tel: (301) 496-1550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Email:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (09-APR-2001) National Institutes of Health, Mammalian Gene Collection (MGC), Cancer Genomics Office, National Cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 1227)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tissue Procurement: ATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         info@bcgsc.bc.ca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Institute, 31 Center Drive, Room 11AO3, Bethesda, MD 20892-2590,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Strausberg, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Robert_Strausberg@nih.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="ubiquitin-like 1 (sentrin)"
/protein_id=AAH06462.1"
/protein_id=AAH06462.1"
/db_xref="Gi:13623671"
/translation="MSOQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKWTTHL
/translation="MSOQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKWTTHL
/KKLKESYCQRQGYPMSSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83.00
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Homo sapiens"
/db_xref="LocusID:7341"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="Vector: pOTB7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      208 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .437
                                                                                                                                                                                                                                                                                                            from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                259 g
                                                                                                                                                                                                                                                                                                            to: 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   374 t
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seq_name: gb_pat1:AR087051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          seq_documentation_block:
                                                                                                                    seq_documentation_block:
LOCUS HSU83117
                                                                                                                                                                seq_name: gb_pr10:HSU83117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /ERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCESSION
                                                                   VERSION
                                                                                   ACCESSION
                                                                                                   DEFINITION
                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Align seg 1/1 to: AR087051 from: 1 to: 1514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-484-964-2 x AR087051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               286 GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT 335
                                                                                                                                                                                                                                                                                                                                                                                                    340 CAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGA 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     190 GGTGAATATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                   52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                   35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                                                                                                                                                               uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                     GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                    AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACAGTT 438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AR087051 1514 bp DNA
Sequence 1 from patent US 5985664.
AR087051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 (bases 1 to 1514)
Baker,B.F. and Cowsert,L.M.
Antisense modulation of Sentrin expression
Patent: US 5985664-A 1 16-NOV-1999;
Location/Qualifiers
1. .1514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AR087051.1 GI:10013817
               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unclassified
                                                                                 Human sentrin mRNA,
U83117
                                                                   U83117.1 GI:1769601
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                  human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83.00
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="unknown"
256 c 314 a
                                                                                                                  1514 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Identity: 100.000
                                                                                                     complete cds
                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                         339
                                                                                                                                                                                                                                                                                                                                                                                                        289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-SEP-2000
```

```
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
                                                                                                                   seq_documentation_block:
LOCUS AF242526
                                                                                                                                                                                   seq_name: gb_om:AF242526
SOURCE
                                              VERSION
                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Quality: 83.00
Ratio: 1.000
Percent Similarity: 100.000
                        KEYWORDS
                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Align seg 1/1 to: HSU83117 from: 1 to: 1514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-484-964-2 x HSU83117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                            190 GGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    290 GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT
                                                                                                                                                                                                                                      390 AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACAGTT 438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                                                                                                                                                                                                                  85 uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Okura, T., Gong, L., Kamitani, T., Wada, T., Okura, T., Wei, C.-F., Chang, H.-M. and Yeh, E.T.H.

Protection Against Fas/APO-1- and Tumor Necrosis Factor-Mediated Cell Death by a Novel Protein, Sentrin

J. Immunol. 157(10), 4277-4281 (1996)

2 (bases 1 to 1514)

Okura, T., Gong, L., Kamitani, T., Wada, T., Okura, I., Wei, C.-F., Chang, H.-M. and Yeh, E.T.H.

Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (23-DEC-1996) Division of Molecular Medicine, Department of Internal Medicine, and Cardiovascular Research Center, Institute of Molecular Medicine for the Prevention of Human Diseases, The University of Texas-Houston Health Science Center, 2121 W. Holcombe Blvd., Suite 900, Houston, TX 77030, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 1514)
                                                                                          Cervus nippon sentrin mRNA,
  sika deer.
                                              AF242526.1 GI:9664276
                                                                       AF242526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /protein_id="aab39999.1"
/protein_id="aab39999.1"
/db_xref="G1:1795602"
/translat.on="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
/translat.on="MSDQEAKPSTEDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
KKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYQEQTGGHSTV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="ubiquitin-like protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Homo sapiens"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="sentrin"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'tissue_type="placenta"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  256 c
                                                                                                                     510 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  314 g
                                                                                                  complete cds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       482 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                   339
                                                                                                                             03-AUG-2000
```

ORGANISM

Cervus nippon

```
FEATURES
                                                                                                                                    REFERENCE
                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                            seq_name: gb_pat1:AX021844
                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                 VERSION
                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                  seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Align seg 1/1 to: AF242526 from: 1 to: 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-484-964-2 x AF242526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity: 100.000
                                              JOURNAL
                                                                                        TITLE
                                                                                                                                                                                ORGANISM
                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                     383 AGATGTGATTGAAGTTTAT 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       333 CAGAGAATTGCTGATAATCACACTCCAAAAGAACTGGGAATGGAGGAAGA 382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          283 GTCAAAGACAGGGAGTTCCTATGAATTCACTCAGGTTTCTCTTTGAAGGT 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  233 CTTCAAAGTGAAAATGACGACACATCTCAAGAAACTCAAAGAATCATACT 282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        183 GGAGAATATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                69 GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                 85 uAspValIleGluValTyr 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19 GlyGluTyrrIeLysLeuLysVallIeGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
         Antiviral compounds that inhibit interaction of host cell proteins and viral proteins required for replication Patent: EP 0861322-A 18 02-SEP-1998; MOUNT SINAI MEDICAL CENTER (US)
                                                                                                      1 (bases 1 to 372)
O'Neill,R. and Palese,P.
                                                                                                                                                                             unidentified
                                                                                                                                                                                                                                                                   Sequence 18 from Patent EP0861322.
                                                                                                                                                                                                                                            AX021844.1 GI:10045087
                                                                                                                                                      unclassified
                                                                                                                                                                                                  unidentified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (07-MAR-2000) Dept. of Immunology, Norman Bethune University of Medical Sciences, xin Min Street, Changchun, Jilin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cervidae; Cervinae; Cervus.

1 (bases 1 to 510)
Sun,L.G., Yu,Y.L. and Jiang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 130021, People's Republic of China
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammaalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        154 a
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="msdQeakpsTeDLGDKKEGEYIKLKVIGQDSSEIHFKVKMTTHL
KKLKESYCQRQGVPMNSLRFLFEGQRIADNHTPKELGMEEEDVIEVYHEQTGGHSTV"
98 c 121 g 137 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="sentrin"
/protein_id="AAF97049.1"
/db_xref="GI:9664277"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="authority: Cervus nippon Temminck"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Cervus nippon"
/db_xref="taxon:9863"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      codon_start=
                                                                                                                                                                                                                                                                                                             372 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              L. and Jiang, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
                                                                                                                                                                                                                                                                                                      07-SEP-2000
```

```
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq_documentation_block:
LOCUS AC084066 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq_name: gb_htg17:AC084066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                        AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Align seg 1/1 to: AX021844 from: 1 to: 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-484-964-2 x AX021844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       184 CTTCAAAGTGAAAATGACAACACATCTCAAAGAAACTCAAAAGAATCATACT 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          134 GGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               334 A 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            234 GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        85 u 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
Consensus quality: 214207 bases at least Q40 consensus quality: 223053 bases at least Q30 consensus quality: 225208 bases at least Q30 Estimated insert size: 200000; pulse field gel estimation
                                                                                                                                                                                                                                                                                        Direct Submission Submitted (12-OCT-2000) Production Sequencing Facility, DOE Joint Genome Institute, 2800 Mitchell Drive, Walnut Creek, CA 94598, USA
                                                                                      Summary Statistics
                                                                                                                                                                                                                                 -----Genome Center
Center: Joint Genome Institute
Center Code: JGI
                                                                                                                           Center clone name: RPCI-23_321D1
                                                                                                                                                                                                            Web site: http://www.jgi.doe.gov
                                                                                                                                                                                                                                                                                                                                                         2 (bases 1 to 235411)
DOE Joint Genome Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus clone RP23-321D1, *** SEQUENCING IN PROGRESS ***, 29
                                                                                                                                                 Center Project Name: 2351294
                                                                                                                                                                         Project Information
                                                                                                                                                                                                                                                                                                                                                                                                Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                      DOE Joint Genome Institute.
Sequencing of Mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus [ bases 1 to 235411)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HTG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AC084066.1 GI:10799415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HTGS_PHASE1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:32644"
1 72 c 97 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. .372
/organism="unidentified"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         235411 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            67.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Identity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              82 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12-OCT-2000
```

```
Estimated insert size: 232611; sum-of-contigs estimation Quality coverage: 11.56 in Q20 bases; pulse field gel estimation Quality coverage: 9.94 in Q20 bases; sum-of-contigs estimation.

* NOTE: This is a 'working draft' sequence. It currently consists of 29 contigs. The true order of the pieces is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown.

* This record will be updated with the finished sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                as soon as it is available and the accession number will be preserved.
                                                                                                      98099
98199
113988
114088
132116
132216
                                                                                                                                                                          66219
66319
76779
76879
                                                                                                                                                                                                                                                                                                                                          29692
29792
                                                                                                                                                                                                                                                                                                                                                                26406
26506
                                                                                                                                                                                                                                                                                                                                                                                                              20367
22002
22102
                                                                                                                                                                                                                                                                                                                                                                                                                                                20267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14114
14214
15287
15387
15387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10115
10215
12092
12192
                                                                                            160185
                                                                                                                                                                                                                                   59009
                                                                                                                                                                                                                                                                     45397
                                                                                                                                                                                                                                                                                            39850
                                                                                                                                                                                                                                                                                                                                                                                                   24308
                                                                                                                                                                                                                                                                                                                                                                                                                                                           17940
                                                                                                                                                                                                                                                                                                         39750
                                                                                                                                                                                                                                                                                                                    34806
                                                                                                                                                                                                                                                                                                                               34706
/organism="Mus musculus"
/db_xref="taxon:10090"
/clone="RP23-321D1"
                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8725:
10114:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1210: contig
                                                        gap of unknown length
contig of 15789 bp in 1
gap of unknown length
contig of 18028 bp in 1
contig of 18028 bp in 1
contig of 18029 bp in 1
contig of 27969 bp in 1
gap of unknown length
contig of 26414 bp in 1
gap of unknown length
contig of 48613 bp in 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gap of contig
                                                                                                                                                                                                           gap of
                                                                                                                                                                                                                                                                     gap of
                                                                                                                                                                                                                                                                                                                  gap of contig
                                                                                                                                                                                                                                                         gap of
                                                                                                                                                                                       gap of
                                                                                                                                                                                                 gap of unknown length contig of 10460 bp in length
                                                                                                                                                                                                                                   gap o
                                                                                                                                                                                                                                                contig
                                                                                                                                                                                                                                                                                            contig
                                                                                                                                                                                                                                                                                                      gap o
                                                                                                                                                                                                                                                                                                                                                     gap o
                                                                                                                                                                                                                                                                                                                                                                  conti
                                                                                                                                                                                                                                                                                                                                                                            gap o
                                                                                                                                                                                                                                                                                                                                                                                                   gap o
                                                                                                                                                                                                                                                                                                                                                                                                                 contig
                                                                                                                                                                                                                                                                                                                                                                                                                          gap o:
                                                                                                                                                                                                                                                                                                                                                                                                                                     contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                           contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gap of
                                                                                                                                                                           contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  unknown
of 1568
                                                                                                                                                                                                                                                                                                                                                                                                                                     unknown
of 1635
                                                                                                                                                                                                                                                                                                                                                                                                                                                             unknown
of 2327
                                                                                                                                                                                                                                                                                                                  unknown
of 4944
                                                                                                                                                                                                                                                                                                                                          unknown
of 4914
                                                                                                                                                                                                                                                                                                                                                                 of 3186
                                                                                                                                                                                                                                                                                                                                                                                        unknown
of 1998
                                                                                                                                                                                                                                                                                                                                                                                                              unknown
of 2206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of 1210 bp in length
unknown length
of 1930 bp in length
                                                                                                                                                                                                                                                unknown
of 7432
                                                                                                                                                                                                                                                                     unknown
of 6080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of 1389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of 1171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of 1082
                                                                                                                                                                                                                         unknown length of 7110 bp in length
                                                                                                                                                                                                                                                                                            of 5447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of 2453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of 1073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of 1922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of 1877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     unknown
                                                                                                                                                                           of 21220 bp in length
                                                                                                                                                                                       unknown length
                                                                                                                                                                                                                                                                                                         unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         bp in length
                                                                                                                                                                                                                                                                                                                    length
bp in ]
                                                                                                                                                                                                                                                                                                                                                                                                                                                bp in l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    đđ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bp in length
                                                                                                                                                                                                                                                                                                                                                                                         bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                     bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     length
                                                                                                                                                                                                                                                                                                                                           bp in length
                                                                                                                                                                                                                                                                                                                                                                  bp in length
                                                                                                                                                                                                                                                                                                                                                                                                              length
bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               length
                                                                                                                                                                                                                                                                        bp in
                                                                                                                                                                                                                                                                                                         length
                                                                                                                                                                                                                                                                                                                                                      length
                                                                                                                                                                                                                                                                                                                                                                             length
                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length
                                                                                                                                                                                                                                                          length
                                                                                                                                                                                                                                                                                 length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    in length
                                                                                                                                                                                                                                                                                                                  length
                                                                                                                                                                                                                                                                                                                                                                                         length
                                                                                                                                                                                                                                                                                                                                                                                                                                                              length
                                                                                                                                                                                                                                                                      length
                                                                                                                                                                                                                                                                                            length
                                                                                                                                                                                                                                                                                                                                                                                                                                     length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length
                                                                                                                                                                                                                                                length
                                                                                                                                                     length
                                                           length
```

FEATURES

source

```
alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq_name: gb_htg22:AL513282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Align seg 1/1 to reverse of: AC084066 from:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-484-964-2 x AC084066/rev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 113002 TTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT 112953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            113052 GGAGAATACATTAAACTCAAAGTTATTGGACAGGACAGCAGTGAGATACA 113003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                        Assembly program: XGAP4; version 4.5
Sequencing vector: plasmid: L08752; 100% of reads
Chemistry: Dye-terminator Big Dye; 100% of reads
Consensus quality: 153015 bases at least Q40
Consensus quality: 153938 bases at least Q30
Consensus quality: 154565 bases at least Q20
Insert size: 155213; sum-of-contigs
Insert size: 164818; 1.0% error; agarose-fp
Quality coverage: 6.89x in Q20 bases; sum-of-contigs
coverage: 7.27x in Q20 bases; agarose-fp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HTG 26-FEB-2001 Homo sapiens chromosome 1 clone RP11-179G5, *** SEQUENCING IN PROGRESS ***, 8 unordered pieces.

AL513282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (25-FEB-2001) Sanger Centre, Hinxton, Cambridgeshire, CB10 15A, UK. E-mail enquiries: humquery@sanger.ac.uk Clone requests: clonerequest@sanger.ac.uk on Feb 28, 2001 this sequence version replaced gi:13161719.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1. (bases 1 to 155913)
* NOTE: This is a 'working draft' sequence. It currently * consists of 8 contigs. The true order of the pieces * is not known and their order in this sequence record is
                                                                                                                                                                                                                                                                                                                                                               Center project name: bA179G5
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Center: Sanger Centre
Center code: SC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pavitt, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AL513282.5 GI:13162044
                                                                                                                                                                                                                                                                                                                                                                                                             Contact: humquery@sanger.ac.uk
                                                                                                                                                                                                                                                                                                                                                                                                                                        Web site: http://www.sanger.ac.uk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62132 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HTGS_PHASE1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone_lib="RPCI mouse BAC library 23"
1 54445 c 54225 g 61806 t 2803 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65.00
                                                                                                                                                                                                                                                                                                                                        --- Summary Statistics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genome Center
                                                                                                                                                                                                                                                                                                                                                                                        Project Information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HTGS_DRAFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   to: 235411
                                                                                                                              sum-of-contigs Quality
          record is
```

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                        Align seg 1/1 to reverse of: AL513282 from: 1 to: 155913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-484-964-2 x AL513282/rev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                         136301 GGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA 136252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                                                                                                                                                                                    19 GlyGluTyrIleLysLeuLysVallleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       43830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          89683 89782; g
89783 108105
108106 108205;
108206 149395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        149496 153075: Contig of 3580 bp in length
153076 153175: gap of 100 bp
153176 155913: contig of 2738 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         108105 108205; gap of 100 bp
108206 149395; contig of 41190 bp in length
149396 149495; gap of 100 bp
149496 153075; contig of 3880 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20839 20938: contig of 20838 bp in length 20839 20938: gap of 100 bp 20939 50589: contig of 29651 bp in length 50590 50689: gap of 100 bp 50690 81538: contig of 30849 bp in length 81539 81638: gap of 100 bp 61638: gap 61638: gap of 100 bp 61638: gap of 100 bp 61638: gap of 100 bp 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          50690. .81539
/note="assembly_fragment:00478
fragment_chain:2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="assembly_fragment:03083
fragment_chain:4"
34529 c 35326 g 41527 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="assembly_fragment:02486
fragment_chain:4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          149496. .153075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         89783. .108105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="assembly_fragment:02750
fragment_chain:3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          108206. .149395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="assembly_fragment:00942
fragment_chain:3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="assembly_fragment:03283
fragment_chain:2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="assembly_fragment:01236
fragment_chain:1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20939.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      vector_side:left"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 clone_end:T7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                fragment_chain:1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="assembly_fragment:02743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:9606"
/chromosome="1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         clone_lib="RPCI-11.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone="RP11-179G5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ∕organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   43.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .15591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100 bp 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .50589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .155913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           35326 g 41527 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             701 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              43
```

ORIGIN

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             seq_name: gb_htg21:AL359981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             136201 GTCAAAGACAGGGCGTTCCAATGAATTCA 136173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       136251 CTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT 136202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   52 ysGlnArgGlnGlyValProMetAsnSer 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Assembly program: XGAP4; version 4.5
Sequencing vector: plasmid; L08752; 100% of reads
Chemistry: Dye-terminator ET-amersham; 16% of reads Chemistry:
Dye-terminator BIG Dye; 83% of reads
Consensus quality: 165078 bases at least Q40
Consensus quality: 16512 bases at least Q30
Consensus quality: 16518 bases at least Q20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Insert size: 166840; sum-of-contigs
Insert size: 138972; 3.5% error; agarose-fp
Quality coverage: 6.32x in Q20 bases; sum-of-contigs Quality
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              coverage: 8.08x in Q20 bases; agarose-fp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Web site: http://www.sanger.ac.uk
Contact: humquery@sanger.ac.uk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Center: Sanger Centre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                On Jan 22, 2001 this sequence version replaced gi:10186747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (20-JAN-2001) Sanger Centre, Hinxton, Cambridgeshire, CB10 1SA, UK. E-mail enquiries: humguery@sanger.ac.uk Clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Center project name: bAll5N23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               requests: clonerequest@sanger.ac.uk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

[ bases 1 to 167440)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens chromosome 1 clone R
PROGRESS ***, 7 unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Center code:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pavitt,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  numan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HTG; HTGS_PHASE1; HTGS_DRAFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AL359981.10 GI:12331082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AL359981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AL359981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              as soon as 10
be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NOTE: This is a 'working draft' sequence. It currently consists of 7 contigs. The true order of the pieces is not known and their order in this sequence record is
                                                                                                                                                                                                                                                        34811 34910: gap of 100 bp 34911 125180: contig of 90270 bp in length 125181 125280: gap of 100 bp 125281 129032: contig of 3752 bp in length 129033 129132: gap of 100 bp 10 length 129033 132599: contig of 3467 bp in length
                                                                                                                                                                                                     132600 132699: gap of 100 bp
132700 141603: contig of 8904 bp in length
                                                                                                                                                                        141604 141703:
                                                                                                                                                                                                                                                                                                                                                                        17991 contig of 17991 bp in length
17992 18091: gap of 100 bp
18092 34810: contig of 16719 bp in length
34811 34910: gap of 100 bp
34911 125180: contig of 90270 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              soon as it is available and the accession number will
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----- Summary Statistics
              /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="1"
                                                                                                                             Location/Qualifiers
/clone="RP11-115N23"
                                                                                                         .167440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            167440 bp
                                                                                                                                                    11703: gap of 100 bp
167440: contig of 25737 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Project Information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NA HTG clone RP11-115N23,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *** SEQUENCING IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20-JAN-2001
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             alignment_block:
US-09-484-964-2 x AL359981/rev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq_documentation_block:
LOCUS AL135926 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq_name: gb_pr5:AL135926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Align seg 1/1 to reverse of: AL359981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   154373 GGTGAATATATATATACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA 154324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        154323 CTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT 154274
                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (03-OCT-2000) Sanger Centre, Hinxton, Cambridgeshire, CB10 1SA, UK. E-mail enquiries: hunguery@sanger.ac.uk Clone requests: clonerequest@sanger.ac.uk
On Aug 14, 2000 this sequence version replaced gi:9621473.
During sequence assembly data is compared from overlapping clones.
Where differences are found these are annotated as variations together with a note of the overlapping clone name. Note that the variation annotation may not be found in the sequence submission corresponding to the overlapping clone, as we submit sequences with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AL135926 158519 bp DNA 30-WOV-2000 Human DNA sequence from clone RP11-375F2 on chromosome 1 Contains pseudogene similar to UBL1 (ubiquitin-like 1 (sentrin)), a pseudogene similar to ribosomal protein L29, ESTs, STSs and GSSs,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Quality:
                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 158519)
                                                                                                                                                                                                                                                                                                                                                                                                                                                         complete sequence.
                                                                                                                                                                                                                      Direct Submission
                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                 AL135926.12 GI:9801286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        47457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     fragment_
18092. .3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="assembly_fragment:00528"
141704. .167440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="assembly_fragment:00856
fragment_chain:1"
132700. .141603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="assembly_fragment:02116
fragment_chain:1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="assembly_fragment:00134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="RPCI-11.1"
1. .17991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          129133. .132599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="assembly_fragment:03000
fragment_chain:1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tragment_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="assembly_fragment:01240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _chain:J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length: 43
Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    from: 1 to: 167440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          600 others
```

```
repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
repeat_region
                                                  repeat_region
                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    only a small overlap as described above. This sequence has been finished according to sequence map criteria as follows. An attempt is made to resolve all sequencing problems, as follows. An attempt is made to resolve all sequencing problems, such as compressions and repeats, but not necessarily within known such as compressions are sequence elements (e.g. Alu). Where the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IMPORTANT: This sequence is not the entire insert of clone RP11-375F2 It may be shorter because we sequence overlapping sections only once, except for a 100 base overlap. The true right end of clone RP11-375F2 is at 158519 in this sequence. The true right end of clone RP1-10C16 is at 100 in this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The following abbreviations are used to associate primary accession numbers given in the feature table with their source databases: Em:, EMBL; Sw.; SWISSPROT; Tr:, TREMBL; Wp:, WORMPEP; Information on the WORMPEP database can be found at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           annotated human repeat sequence elements (e.g. Alu). Where the sequence is ambiguous, there is an annotation using the 'unsure'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Park Cancer Institute by the group of Pieter de Jong. For further details see http://bacpac.med.buffalo.edu/VECTOR: pBACe3.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         http://www.sanger.ac.uk/HGP/Chrl
RP11-375F2 is from the library RPCI-11.2 constructed at the Roswell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Group.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        chromosome 1, constructed by the Sanger Centre Chromosome 1 Mapping
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 http://www.sanger.ac.uk/Projects/C_elegans/wormpep This sequence was generated from part of bacterial clone contigs of human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Further information can be found at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="AluSx repeat: matches 1.8551.8624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5960.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="L1MB5 repeat: matches 5322. .5428 of consensus" 5652. .5945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5535.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4294.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
1. .158519
/note="L1PA8 repeat: matches 5371. .6158 of consensus"
11337. .11671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6160.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6061.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="MIR repeat: matches 85. .135 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="MLT1J repeat: matches 306. .514 of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone_lib="RPCI-11.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="RP11-375F2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:9606"
/~hromosome="1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Homo sapiens"
                                                                                                                                 /note="match: GSS: Em:B40536"
                                                                                                                                                                                                                                                                                                 /note="MER46A repeat: matches 2. .235 of consensus"
                                                                                                                                                                                                                                                                                                                                                 /note="L2 repeat: matches 2620. .2750 of
                                                                                                                                                                                                                                                                                                                                                                                   7099.
                                                                                                                                                                                                                                                                                                                                                                                                       /note="L2 repeat: matches 2206. .2403 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0061. .6158
/note="AluY repeat: matches 214. .311 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="L1MB5 repeat: matches 5413. .5471 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note="AluSq repeat: matches 12. .309 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="L1MB7 repeat: matches 4938. .6173 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="L2 repeat: matches 2373. .2707 of consensus"
                                                                              /note="MIR repeat: matches 28.
                                                                                                                                                                                      'note="MIR repeat: matches 81.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               note="L1MB5 repeat: matches 5460. .6168 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .5519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .6055
                                                                                                                                                                                                                                                                                                                                                                                                                                         .7101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . 5995
                                                                                                          .10464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                copies 4 mer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aagg 88% conserved"
                                                                                 .215
                                                                                                                                                                                               .153
                                                                                                                                                                                                                                                  .285 of consensus*
                                                                                                                                                                                               of.
                                                                                 of consensus"
                                                                                                                                                                                            consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      consensus"
```

/note="MLT1D repeat: matches 13. .381 of consensus"

FEATURES

```
repeat_region
                                          repeat_region
                                                                                       repeat_region
                                                                                                                                    repeat_region
                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                               /note="LIMC4 repeat: matches 6621. .7006 of consensus" 27982. .28315
                                                                                                                                                                                                                                                                         /note="L2 repeat: matches 2064. .2155 of consensus" 27438. .27487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="MIR repeat: matches 60. .153 of consensus" 16536. .16633 /note="LIM4 repeat: matches 3093. .3194 of consensus" 16839. .17215 /note="LIPA7 repeat: matches 5767. .6143 of consensus" 17225. .17961 /note="LIPA3 repeat: matches 5410. .6146 of consensus" 17962. .19671
                                                                                                                                                                                                                                                                                                                                                                                                           /note="AluY repeat: matches 1. .282 of consensus" 27110 . .27647
                                                                                                   /note="L1MC5_repeat: matches 7262. .7589 of consensus"
                                                                                                                                                /note="L1MC4 repeat: matches 7094. .7422 of consensus"
                                                                                                                                                                                                                                                                                                        /note="L2 repeat: matches 2549. .2668 of consensus" 27347. .27437
                                                                                                                                                                                                                              /note="L1MC/D repeat: matches 5637. .5685 of consensus"
27552. .27933
                                                                                                                                                                                                                                                                                                                                                            /note="match: STS: Em:HS045M12S"
27233. .27346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="6 copies 6 mer tgtgtg 97% conserved"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="LIME1 repeat: matches 5508. .6163 of consensus"
25865. .25900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="LlM2 repeat: matches 37. .2571 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="L1M4 repeat: matches 3403. .3585 of consensus"
20479. .21023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="MLTIE repeat: matches 385..567 of consensus"
complement(14529..15003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11672. .11971
/notce-"Ally repeat: matches 1. .295 of consensus"
/1855. .12218
/notce-"unidirectional dGTP only"
/1972. .12090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 note="L1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22104. .24249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="LIPBa repeat: matches -977. .1014 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20277. .20462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="L1PA7 repeat: matches 3477. .4076 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="L1PA7 repeat: matches 4077. .5788 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'note="L1PBa repeat: matches -1540. .-1003 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="match: GSS: Em:AQ798857"
14901. .15366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="MLT1E repeat: matches 2. .81 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                note="match: GSS: Em:AQ221861"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="L2 repeat: matches 2576. .2669 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13164. .13253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="L2 repeat: matches 1683. .2403 of consensus"
13091. .13572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="Alusx repeat: matches 1. .297 of consensus"
12419. .13151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="MLT1D repeat: matches 381. .492 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'note="24 copies 6 mer tatata 78% conserved"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .3254. .13403
note="75_copies 2 mer at 76% conserved"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="match: GSS: Em:AQ887510"
.30300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .15463
                                        aluY repeat: matches 1. .310 of consensus".29218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .24890
                                                                                       28938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .22136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .13410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           l repeat: matches 2118. .2843 of consensus"
25532
              repeat: matches 5338. .5450 of consensus
```

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                           alignment_scores:
                                                                                                                                                                                                                                                                                                                                                    Quality: 42.00
Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                    Align seg 1/1 to: AL135926
                                                                                                                                                                                                                                                                                             US-09-484-964-2 x AL135926
                                                                                                                                                           31888 GAGTTCCAATGAATTCACTCAGATTT 31913
                                                                             31838 AATGACAACATCTCAAGAAACTCAAAGAATCATACTGTCAAAGGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                     56 lyValProMetAsnSerLeuArgPhe 64
                                                                                                                   39 sMetThrThrHisLeuLysLysLeuLysGluSerTyrCysGlnArgGlnG 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                               33291. .33725
/note="MLT1F repeat: matches 94. .541 of consensus"
35465. .35500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /evidence=not_experimental complement(32129, .32630) /note="match: GSS: Em:AQ747371" 32225, .32619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="bA375F2.1"
31722. 32025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(32404.32636)
/note="match: GSS: Em:AQ195587"
33174.33222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            match: ESTs: Em:AI191222 Em:AI248769
match: proteins: Tr:O9PT08 Tr:C23759 Sw:P55853 Tr:O9Z172
Sw:O93068 Sw:P55845 Sw:P55855 Sw:O13351 Sw:Q12306
Tr:O97102 Tr:O57686"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="MIR repeat: matches 71..190 of consensus" 30761..30877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   match: cDNAs: Em:U72722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="match: GSS: Em:AQ093192"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="bA375F2.1 (similar to UBL1 (ubiquitin-like 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'note="L2 repeat: matches 2624. .2668 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="bA375F2.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'note="L2 repeat: matches 466. .712 of consensus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="L2 repeat: matches 2362. .2474 of consensus"
                                                                                                                                                                                                                                                  from: 1 to: 158519
                                                                                                                                                                                                                                                                                                              42
Gaps: 0
Percent Identity: 100.000
                                                                                31887
```

```
seq_documentation_block:
ID AAV34564 standard; DNA; 1465 BP.
XX
AC AAV34564;
XX
I1-SEP-1998 (first entry)
XX
DE Homo sapiens sentrin-1 gene.
XX
Sentrin-1; protection; tumour necr.
KW sentrin-1; protection; tumour cell death
KW detection; determination; ss.
XX
OS Homo sapiens.
XX
FM Key Location/Qualifier;
FM Key 88..393
FM CDS /*tag= a
FM WO9820038-A1.
XX
PD 14-MAY-1998.
XX
PD 14-MAY-1998.
XX
PF 05-NOV-1997; 97WO-US20344.
XX
PR 05-NOV-1996; 96US-0030302.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              About: Results were produced by the GenCore software, version 4.5, Copyright (c) 1993-2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Date: Aug 15, 2001 6:43 PM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM of: US-09-484-964-2 to: N_Geneseq_0601:*

        Sequence
        Strd Orig
        ZSCORE
        Len
        ! Documentation

        /SIDS1/gcgdata/geneseq/geneseqn/NA1998
        DAT: AAV34564
        101.00
        1905.04

        /SIDS1/gcgdata/geneseq/geneseqn/NA1998
        DAT: AAV59722
        83.00
        1563.51

        /SIDS1/gcgdata/geneseq/geneseqn/NA1998
        DAT: AAV59557
        83.00
        1563.37

        /SIDS1/gcgdata/geneseq/geneseqn/NA2000
        DAT: AAX35859
        83.00
        1561.83

        /SIDS1/gcgdata/geneseq/geneseqn/NA2000
        DAT: AAAA16215
        71.00
        139.61

        /SIDS1/gcgdata/geneseq/geneseqn/NA2091
        DAT: AAAT63339
        67.00
        1267.00

        /SIDS1/gcgdata/geneseq/geneseqn/NA2096
        DAT: AAAT63339
        67.00
        1267.00

        /SIDS1/gcgdata/geneseq/geneseqn/NA2090
        DAT: AAAT63339
        67.00
        1267.00

        /SIDS1/gcgdata/geneseq/geneseqn/NA2090
        DAT: AAAT63339
        67.00
        1267.00

        /SIDS1/gcgdata/geneseq/geneseqn/NA2000
        DAT: AAAT63339
        67.00
        1267.00

        /SIDS1/gcgdata/geneseq/geneseqn/NA2000
        DAT: AAAA43182
        32.00
        600.84

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WARN:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Command line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA1998.DAT:AAV34564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Search time (sec): 128.620000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Database sequences: 730101
Database length: 313950809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Database: N_Geneseq_0601:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query length: 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Search information block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               score_list:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                XGAPOP and YGAPOP must be equal. Assuming YGAPOP-XGAPOP-60.000 XGAPEXT and YGAPEXT must be equal. Assuming YGAPEXT-XGAPEXT-60.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                  sentrin-1; protection; tumour necrosis factor; tnf; apoptosis;
ras/APO-induced; tumour cell death; induction; tumour aggressiveness;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-484-964-2
                                                                                                                                                                                                                                                                                      Location/Qualifiers 88..393
                                                                                                                                                                                                                                 /product= sentrin-1 polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              out_format :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4.1e-79
4.1e-79
5.0e-79
1.2e-66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.3e-62
1.3e-62
2.0e-60
1.7e-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.8e-98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1465
1196
1220
1514
616
372
372
372
425
```

```
alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alignment_scores:
                                                                                       seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA1998.DAT:AAV59722
                               seq_documentation_block:
ID AAV59722 standard; DNA; 1196 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Align seg 1/1 to: AAV34564 from: 1 to: 1465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-484-964-2 x AAV34564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The sequence is that encoding the sentrin-1 polypeptide. Sentrin polypeptides have the ability to protect or guard cells from tumour necrosis factor (TNF) or Fas/APO induced cell death (apoptosis). Inhibitors of the sentrin polypeptides, e.g. antibodies, can be used for inducing cell death, particularly in tumours. The products can also be used for determining the aggressiveness of a tumour and for detection and isolation of products. The sentrin polypeptide can also be used to detect a ubiquitin conjugating enzyme polypeptide or PML polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New isolated sentrin polypeptide(s) - which inhibit TNF receptor or Fas/APO-induced apoptosis, used to develop products for inducing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1465 BP; 455 A; 248 C; 292 G; 470 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 10; Page 76-77; 120pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cell death in tumours
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             P-PSDB; AAW60079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1998-286868/25.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Yeh ETH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (TEXA ) UNIV TEXAS SYSTEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                     188 TTCACTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCA 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   138 GCAAGGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGA 187
                                                                                                                                                                                                               338 AAGAAGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACA 387
                                                                                                                                                                                                                                                                                               288
                                                                                                                                                                                                                                                                                                                                                                          238 TACTGTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGA 287
AAV59722;
                                                                                                                                   388 GTT 390
                                                                                                                                                                           101 Val 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17 sGlnGlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluI 34
                                                                                                                                                                                                                                                                                            34 leHisPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSer 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88 ATGTCTGACCAGGAGGCAAAACCTTCAACTGAGGACTTGGGGGGATAAGAA 137
                                                                                                                                                                                                                                                                                                                                                                                                                  51
                                                                                                                                                                                                                                    84 luGluAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThr 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MetSerAspGlnGluAlaLysProSerThrGluAspLeuGlyAspLysLy 17
                                                                                                                                                                                                                                                                                                                                                                                                              TyrCysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGl 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               101
```

19-JAN-1999

(first entry)

```
Human; secreted protein; fusion protein; gene therapy; protein therapy; diagnosis; tissue; cancer; tumour; neurodegenerative disorder; leukaemia; developmental abnormality; foetal deficiency; blood; allergy; renal; ds; inmune system; asthma; lymphocytic disease; brain; hepatic; lymphoma; inflammation; ischaemic shock; Alzheimer's disease; restenosis; AIDS; cognitive disorder; schizophrenia; prostate; obesity; osteoclast; thymus; osteoporosis; arthritis; testis; lung; thyroiditis; thyroid; digestion; endocrine; metabolism; regulation; malabsorption; gastritis; neoplasm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         06-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human secreted protein gene 47 clone HOGAV75.
            97US-0047598.
97US-0047599.
97US-0047600.
97US-0047601.
97US-0047612.
97US-0047613.
97US-0047613.
97US-0047615.
                                                                                                                                                                                                                    97US-0040626

97US-0043311

97US-0043313

97US-0043569

97US-0043569

97US-0043569

97US-0043569

97US-0043569

97US-0043669

97US-0043671

97US-0043671

97US-0043671

97US-0047501

97US-0047501

97US-0047503

97US-0047503

97US-0047503

97US-0047503

97US-0047503

97US-0047503

97US-0047503

97US-0047583

97US-0047583

97US-0047583

97US-0047585

97US-0047585

97US-0047585
                                                                                                                         97US-0047596
97US-0047597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97US-0040334
97US-0040336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97US-0040333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98WO-US04493
                                                                                                                                                 -0047595
      This sequence represents a nucleic acid molecule designated Gene 47 from the human cDNA clone HOGAV75 (deposited as clone ATCC 97897 and ATCC 209043) which encodes a secreted human protein. The gene can be used to generate fusion proteins by linking to the gene to a human immunoglobulin Fc portion (e.g. AAV59502) for increasing the stability of the fused protein as compared to the human protein only. The invention relates to 186 novel genes and their fragments (nucleic acid sequences: AAV59511-V59812; amino acid sequences AAW74731-W75026) which are useful for preventing, treating or ameliorating medical conditions e.g. by protein or gene therapy. Also, pathological
                                                                                                                                                                                                                                                                                                                                                       22-AUG-1997
                                                                                                                                                      New isolated human genes and the secreted polypeptide(s) they encode - useful for diagnosis and treatment of e.g. cancers, neurological disorders, immune diseases, inflammation or blood disorders
                                                                                                                                   Claim 1; Page 449; 721pp; English.
                                                                                                                                                                                                           WPI; 1998-506364/43.
P-PSDB; AAW74938.
                                                                                                                                                                                                                                                             Feng
Kyaw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23-MAY-1997;
23-MAY-1997;
23-MAY-1997;
06-JUN-1997;
06-JUN-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    08-JUL-1997;
16-JUL-1997;
18-AUG-1997;
                                                                                                                                                                                                                                                                                                         (HUMA-) HUMAN GENOME SCI INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22-AUG-1997;
22-AUG-1997;
                                                                                                                                                                                                                                                           Ħ,
                                                                                                                                                                                                                                             Lafleur DW, Li Y, N, Shi Y, Soppet DR,
                                                                                                                                                                                                                                                                                    DP,
                                                                                                                                                                                                                                                                       Ferrie AM,
                                                                                                                                                                                                                                                                                    Brewer LA,
                                                                                                                                                                                                                                                                                                                                97US-0057669.
97US-0057761.
97US-0058785.
                                                                                                                                                                                                                                                                                                                                                                                97US-0056908.
97US-0056909.
97US-0056910.
97US-0056911.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97US-0056875
97US-0056876
97US-0056877
97US-0056878
97US-0056879
97US-0056880
97US-0056881
97US-0056881
97US-0056884
97US-0056884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97US-0056872.
97US-0056874.
97US-0056875.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97US-0056845.
97US-0056862.
97US-0056864.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97US-0047618.
97US-0047632.
97US-0047633.
97US-0048964.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97us-0056662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97US-0056637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97US-0056632
97US-0056636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97US-0055724
97US-0056630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97US-0051926
                                                                                                                                                                                                                                        r LA, Carter KC, Duan R, Ebner R,
Fischer CL, Florence KA, Greene JJ,
, Li Y, Moore PA, Ni J, Olsen HS,
Soppet DR, Young PE, Yu GL, Zeng Z
                                                                                                                                                                                                                                            . Ebner R, Enucc.
A, Greene JM, Hu JS;
pathological
                                                                                                                                                                                                                                                                             Endress GA;
```

33333333333

```
seq_documentation_block:
ID AAV59557 standard; DN
XX
AC AAV59557;
XX
O6-JAN-1999 (first e
XX
Human secreted protei
XX
Human; secreted protei
XX
Human; secreted protei
XX
Human; secreted protei
XX
Human secreted protei
XX
Human secreted protei
XX
Human; secreted protei
XX
Human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             alignment_scores:
Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA1998.DAT:AAV59557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Align seg 1/1 to: AAV59722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-484-964-2 x AAV59722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  conditions can be diagnosed by determining the amount of the new polypeptides in a sample or by determining the presence of mutations in the new polynucleotides. Specific uses are described for each of the 186 polynucleotides, based on which tissues they are most highly expressed in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1196 BP; 360 A; 212 C; 259 G; 364 T; 1 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       188
                                                                                                                                                                                                                                                                                                                  Human; secreted protein; fusion protein; gene therapy; protein therapy; diagnosis; tissue; cancer; tumour; neurodegenerative disorder; leukaemia; developmental abnormality; foetal deficiency; blood; allergy; renal; ds; immune system; asthma; lymphocytic disease; brain; hepatic; lymphoma; inflammation; ischaemic shock; Alzheimer's disease; restenosis; AIDS; cognitive disorder; schizophrenia; prostate; obesity; osteoclast; thymus; osteoporosis; arthritis; testis; lung; thyroiditis; thyroid; digestion; endocrine; metabolism; regulation; malabsorption; gastritis; neoplasm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAV59557 standard; DNA; 1220 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human secreted protein gene 47 clone HOGAV75.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19
                                                                                                                                                                                                                                                                                                             endocrine; metabolism; regulation; malabsorption; gastritis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACAGTT 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAV59511 for described uses).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
    97US-0061060.
97US-0038621.
97US-0040161.
97US-0040162.
97US-0040163.
97US-0040333.
                                                                                                                                                   98WO-US04493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            83.00
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      from: 1 to: 1196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Identity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           83
0
100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              287
                   11 - APR - 1997

23 - MAY - 1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11-APR-1997;
11-APR-1997;
11-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 07-MAR-1997;
07-MAR-1997;
07-MAR-1997;
11-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23-MAY-1997;
23-MAY-1997;
23-MAY-1997;
              23 -MAY -1997

23 -MAY -1997

23 -MAY -1997

06 -JUN -1997

06 -JUN -1997

06 -JUL -1997

13 -JUL -1997

16 -JUL -1997

16 -JUL -1997

17 - AUG -1997

18 - AUG -1997

19 - AUG -1997

19 - AUG -1997

19 - AUG -1997

10 - AUG -1997

10 - AUG -1997

11 - AUG -1997

12 - AUG -1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11-APR-1997;
11-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11-APR-1997;
11-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97US-0040334.
97US-0040336.
97US-0040626.
97US-0043311.
97US-0043312.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97US-0047584.

97US-0047585.

97US-0047587.

97US-0047587.

97US-0047588.

97US-0047590.

97US-0047590.

97US-0047593.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97US-0047500.
97US-0047501.
97US-0047502.
97US-0047503.
97US-0047581.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97US-0043669.
97US-0043670.
97US-0043671.
                                                                                                                                                                                                                                                                                                                                              97US-0047594.
97US-0047595.
97US-0047596.
97US-0047599.
97US-0047610.
97US-0047611.
97US-0047615.
97US-0047615.
97US-0047615.
97US-0047615.
97US-0047618.
97US-0047618.
97US-0047618.
97US-0047618.
97US-0047619.
97US-004763.
97US-004964.
97US-004964.
97US-004964.
97US-0058874.
97US-0058874.
97US-00558724.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97US-0047582.
97US-0047583.
97US-0047584.
                 97US-0056862.

97US-0056804.

97US-0056872.

97US-0056875.

97US-0056875.

97US-0056877.

97US-0056877.

97US-0056877.
                                                                                                                                                                                                  97US-0056662.
97US-0056664.
97US-0056845.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97US-0043674
97US-0047492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97US-0043578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97US-0043569
97US-0043576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97US-0043314
97US-0043568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         97US-0043580
                                                                                                                                                                                                                                                                 97US-0056636
97US-0056637
                                                                                                                                                                                                                                                                                                         97US-0056631
97US-0056632
```

```
alignment_block:
                                                                                                                                                                                                                                                alignment_scores:
                                                                                                                        Align seg 1/1 to: AAV59557 from: 1 to: 1220
                                                                                                                                                        US-09-484-964-2 x AAV59557
                                                                                                                                                                                                                                                                                                               CC This sequence represents a nucleic acid molecule designated Gene 47 from CC the human cDNA clone HCGAV75 (deposited as clone ATCC 97899 and ATCC C299045) which encodes a secreted human protein. The gene can be used to CC immunoglobulin Fc portion (e.g. AAV59502) for increasing the stability of CC the fused protein as compared to the human protein only.

CC The invention relates to 186 novel genes and their fragments (nucleic CC acid sequences: AAV59511-V59812; amino acid sequences AAW74731-W75026) CC which are useful for preventing, treating or ameliorating medical CC conditions e.g. by protein or gene therapy. Also, pathological conditions CC can be diagnosed by determining the amount of the new polypeptides in a CC polynucleotides. Specific uses are described for each of the 186 CC polynucleotides, based on which tissues they are most highly expressed in CC (see AAV59511 for described uses).
                                                                                                                                                                                                  Percent Similarity: 100.000
232 CTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
                                                          182 GGTGAATATATAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA
                                                                                                                                                                                                                                                                                    Sequence 1220 BP; 382 A; 207 C; 258 G; 372 T; 1 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22-AUG-1997;
22-AUG-1997;
22-AUG-1997;
22-AUG-1997;
22-AUG-1997;
22-AUG-1997;
22-AUG-1997;
              35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                      19 GlyGluTyrIleLysLeuLysVallleGlyGlnAspSerSerGluIleHi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New isolated human genes and the secreted polypeptide(s) they encode - useful for diagnosis and treatment of e.g. cancers, neurological disorders, immune diseases, inflammation or blood disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Feng P,
Kyaw H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 1; Page 279-280; 721pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P-PSDB; AAW74777.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1998-506364/43.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bednarik DP,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (HUMA-) HUMAN GENOME SCI INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            05-SEP-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22-AUG-1997;
22-AUG-1997;
                                                                                                                                                                                                                                 Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lafleur DW,
, Shi Y, S
                                                                                                                                                                                                                     Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ferrie AM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Brewer LA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97US-0057761.
97US-0058785.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97US-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        970S-0056911.
970S-0057650.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97US-0056892.
97US-0056893.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         97us-0057669.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97us-0056910.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97US-0056903.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97us-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97US-0056889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97US-0056888.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97US-0056887
                                                                                                                                                                                                                     1.000
                                                                                                                                                                                                                                 83.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Soppet DR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fischer CL, Flore, Li Y, Moore PA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -0056894.
                                                                                                                                                                                                Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Carter KC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Young PE, Yu GL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KC, Duan R, Ebner R, Florence KA, Greene J
                                                                                                                                                                                                              Length:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A, Greene JM, Hu JS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Zeng Z;
                                                          231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Endress
```

alignment\_block:

Percent Similarity: 100.000

Percent Identity:

100.000

Length: Gaps: alignment\_scores:

Quality: Ratio:

83.00 1.000

```
seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAZ35859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq_documentation_block:
ID AAZ35859 standard; cDNA; 1514 BP
                                        The present invention describes an antisense compound (I) 8-30 nucleotides long targeted to a nucleic acid molecule encoding human sentrin. The antisense compound comprises a phosphorothioate antisense oligonucleotide which inhibits expression of human sentrin. (I) is useful for inhibiting expression of sentrin in human cells or tissues in vitro, for treating humans or other animals suspected of having or being prone to a disease associated with sentrin expression. (I) can also be used for research or diagnostic purposes. The present
 Sequence 1514 BP; 462 A;
                                  sequence encodes human sentrin.
                                                                                                                                                                                                        Example 13; Column 39-42; 29pp; English.
                                                                                                                                                                                                                                         Antisense compound which modulates human sentrin expression, useful for treating diseases associated with sentrin expression -
                                                                                                                                                                                                                                                                                                 P-PSDB; AAY49967
                                                                                                                                                                                                                                                                                                                                                                                    (ISIS-) ISIS PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                                      17-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     17-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16-NOV-1999.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US5985664-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human sentrin nucleotide sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  03-FEB-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    382 AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACAGTT 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human; sentrin; antisense oligonucleotide; phosphorothioate;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         332 CAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGA 381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           inhibition; modulation; expression; diagnosis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         282 GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        85 uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                2000-022284/02.
                                                                                                                                                                                                                                                                                                                                                                                                                    98US-0213768
                                                                                                                                                                                                                                                                                                                                                                                                                                                     98US-0213768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers 136..441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product= "sentrin"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /*tag=
256 C; 314 G; 482 T; 0 other;
```

Align seg 1/1 to: AAZ35859 US-09-484-964-2 x AAZ35859

from: 1

to: 1514

19

by the nucleotide sequence can also be used in a method to detect colon cancer. The diagnostic method is non-invasive and accurate for diagnosi

for diagnosing

```
documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               190
This sequence represents a human nucleotide sequence which is differentially expressed in colon cancer cells compared to the expression levels in normal cells. The nucleotide sequence can be used as a source of primers and probes. The nucleotide sequence is useful for determining the phenotype of a cell by detecting the differential expression of the sequence relative to a normal cell. The probes derived from the sequence can also be used to determine the phenotype of cells in a sample. Probes and antibodies which hybridise to the nucleotide sequence can also be used to determine the phenotype of a cell. The primers are useful for detecting a mutation in a test nucleotide sequence and also for detecting cancer, preferably colon cancer. Antibodies against the protein encoded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   340 CAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGA 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Colon cancer; detect; differential expression; human; treatment; detect mutation; non-invasive diagnostic method; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              390 AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACAGTT 438
                                                                                                                                                                                                                                                                                                                                                       Endege WO,
Catino TJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                           31-AUG-1998;
27-JAN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 09-MAR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human colon cancer differentially expressed nucleotide sequence #220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14-JUN-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAA16215 standard; DNA; 616 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200012702-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                 Claim 16; Page 211-212; 345pp; English.
                                                                                                                                                                                                                                                useful for treating and
                                                                                                                                                                                                                                                                      Novel nucleic acids and
                                                                                                                                                                                                                                                                                                      WPI; 2000-256641/22
                                                                                                                                                                                                                                                                                                                                     Schlegel R;
                                                                                                                                                                                                                                                                                                                                                                                                         (FARB ) BAYER CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                85 uAspVallleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT 339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAA16215
                                                                                                                                                                                                                                                                                                                                                       Steinmann KE, Astle JH, Burgess CC, (Dwivedi P, Ford DM, Lewis ME, Molino
                                                                                                                                                                                                                                                                                                                                                                                                                                             98US-0098639
99US-0117393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99WO-US19424.
                                                                                                                                                                                                                                                proteins for identifying therapeutic agents diagnosing cancer, especially colon cancer
                                                                                                                                                                                                                                                                                                                                                                           Carroll E;
                                                                                                                                                                                                                                                                                                                                                           GA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              52
                                                                                                                                                                                                                                                                                                                                                             Monahan
```

```
alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SSSSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                seq_documentation_block:
ID AAT63339 standard; cDNA; 372 BP
                                                                                                                                                                                                                                                                                                                                                                                                               seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA1997.DAT:AAT63339
Align seg 1/1 to: AAA16215 from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-484-964-2 x AAA16215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 616 BP; 181 A; 109 C; 149 G; 170 T; 7 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   colon cancer at an early stage.
                                                                                                                                                                                                                                                                                                                                                                                                                                          381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181 GGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA
                                                                                                                                                                                                                                                                                                         Human host cell protein NPI-6 partial cDNA clone
                                                                                                                                                                                                                                                                                                                                17-AUG-1997
                                                                                                                                                                                                                                                                                                                                                        AAT63339;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       331 CAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGA 380
                                                                                                                                                                                                                                                                   Host cell protein; NPI-6; nucleoprotein interactor influenza virus; replication; antiviral; virucide;
                               New isolated DNA which encodes viral interacting proteins - used in assays to isolate products for inhibiting viral protein binding which is required for infection, replication, assembly or release
                                                                                                                                                                                                                                                Homo sapiens
                                                                               WPI; 1997-226211/20.
                                                                                                       Oneill R,
                                                                                                                            (MOUN ) MOUNT SINAI MEDICAL CENT
                                                                                                                                                   06-OCT-1995;
                                                                                                                                                                            06-OCT-1995;
                                                                                                                                                                                                   10-APR-1997
                                                                                                                                                                                                                         WO9712967-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                               85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                        AGATGTGATTGAA 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                               uAspValIleGlu 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ratio:
                                                                                                        Palese P;
                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.000
                                                                                                                                                     95WO-US13044
                                                                                                                                                                            95WO-US13044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               71.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Identity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                to:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     280
```

Disclosure; Fig 11; 98pp; English.

```
seq_documentation_block:
ID AAF59399 standard; DNA; 372 BP.
XX
AC AAF59399;
XX
DT 02-MAY-2001 (first entry)
XX
DT 02-MAY-2001 (first entry)
XX
Entry
DE Human host cell protein NPI-6 par
XX
KW Identification; antiviral; viral
KW viral infection; nucleoprotein; d
XX
VIRAL PROPERTY
XX
PN W0200111335-A2.
XX
PN W0200111335-A2.
XX
PN 11-FEB-2001.
XX
PF 11-AUG-2000; 2000WO-US22257.
XX
PF 11-AUG-1999; 99US-0148263.
XX
PR 11-AUG-1999; 99US-0148263.
XX
PR 11-AUG-1999; POUS-0148263.
XX
PA (MOUN) MOUNT SINAI SCHOOL MEDICI
XX
PA (MOUN) MOUNT SINAI SCHOOL MEDICI
XX
PA (MOUN) MOUNT SINAI SCHOOL MEDICI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA2001.DAT:AAF59399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SSSSSSSSSSSXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Align seg 1/1 to: AAT63339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-484-964-2 x AAT63339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human host cell protein NPI-6 partial nucleotide sequence SEQ ID NO:11.
                                                                                                                               (MOUN ) MOUNT SINAI SCHOOL MEDICINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  viral infection; nucleoprotein; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Identification; antiviral; viral protein; viral replication; NP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cDNA clones (AAT63335-39) comprise partial sequences for human nucleoprotein interactor proteins NPI-2 to NPI-6, respectively. These are host cell proteins which interact with influenza virus nucleoprotein (NP) and which may be accessory proteins required for influenza virus replication. NPI-6 was identified as a novel protein sequence. NPI sequences were isolated by interactive trap selection using LexA-NP as bait and yeast transformed with an HeLa cDNA ilbrary. NPI-1 (see also AAT63334) and NPI-2 to NPI-6 cDNAs were cloned and analysed. The clones can be used to produce human NPI clones can be used to produce clones 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           334 A 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          284 CAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGA 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      234 GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             184 CTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                85 u 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       69 GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 372 BP; 121 A; 72 C; 97 G; 82 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     replication.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         proteins for use in identifying cpds. that inhibit viral
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               67.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ţo:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         183
```

```
XXX XXX XXX XXX
                                                                                                                                                                                                                                                                                  seq_documentation_block:
                                                                                                                                                                                                                                                                                                                           seq_name: /SIDS1/gcgdata/geneseq/geneseqn/NA1996.DAT:AAT03735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The present invention describes a method (M1) for identifying a substance that inhibits the interaction of a viral protein (VP) with a CC host cell protein (HP). The method comprises: (a) contacting HP with VP CC in the presence of a test substance; and (b) detecting complex formation, CC where the ability of the test substance to inhibit HP/VP interaction is indicated by a decrease in complex formation. The antiviral compounds that inhibit the interaction between a host protein (NS1-BP or NPI-1) CC and a viral protein (NS1) are useful for treating or inhibiting viral infection, preferably influenza and rhabdovirus infection, in humans. CC compositions comprising a polypeptide containing an amino acid sequence corresponding to the NP-NLS domain of the influenza virus NP protein are useful for treating or inhibiting influenza virus in protein with the influenza virus in protein with the confluenza virus in protein are useful for treating or inhibiting influenza virus in protein are useful for treating or inhibiting complex in the exemplification of the NPI-1 protein with the confluenza virus in protein NPI-6 partial nucleotide sequence represents a human host cell protein NPI-6 partial nucleotide sequence, which is used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Align seg 1/1 to: AAF59399 from: 1 to: 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-484-964-2 x AAF59399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity: 100.000
             intracellular domain binding protein; ss
                                      Tumour necrosis factor receptor; TNF-R; p55IC; Fas-IC;
                                                                                             TNF-R p55IC/Fas-IC-binding protein DD11 cDNA clone.
                                                                                                                                                                                                                                                                                                                                                                                       334 A 334
                                                                                                                                                 26-MAR-1996 (first entry)
                                                                                                                                                                                                                                                    AAT03735 standard; cDNA; 425 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       284 CAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGA 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          234 GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          184 CTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               134 GGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 372 BP; 121 A; 72 C; 97 G; 82 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                           85 u 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   69 GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; Fig 11; 147pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19 GlyGluTyrIleLysLeuLysVallleGlyGlnAspSerSerGluIleHi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       antiviral compounds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Identifying a substance that inhibits the interaction between a viral protein and a host cell protein, useful for the discovery of new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2001-168816/17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               67.00
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              52
```

```
seq_documentation_block:
ID AAA43182 standard;
                                                                                                                                                                                                                                                                                                                                                                                    seq_name:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        alignment_scores
       EXEXTXEX
EXTXEX
EX
EXTXEX
EX
EXTXEX
EX
EXTXEX
EX
EXTXEX
EX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Align seg 1/1 to: AAT03735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-484-964-2 x AAT03735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDNA clone DD11 (AAT03735) was isolated by screening a human HeIa library using the human tumour necrosis factor receptor (TNF-R) p55 death domain (p55DD) as 'bait'. The full length of the DD11 transcript is approx 1.2 kb. The protein encoded by cDNA DD11 interacts strongly with p55DD (amino acids 326-414) and also with human and mouse FAS intracellular domain. Such proteins may be used modulate TNF-R function.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 425 BP; 135 A; 80 C; 115 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 18; Fig 12; 96pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            or HIV-infected cells
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TNF-NGF receptor superfamily intracellular domain-binding proteins useful for modulating receptor function, e.g. for treating tumours
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Boldin M, Mett I,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           02-OCT-1994;
11-MAY-1994;
Human; mouse; xenopus; rat; secreted expressed sequence tag; sEST;
                                                                  Xenopus secreted expressed sequence tag SEQ ID NO:1922.
                                                                                                                                            21-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 1996-010930/01.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (WEIN/) WEINWURZEL H.

(YEDA ) YEDA RES & DEV CO LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11-MAY-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           W09531544-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGlu 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTTGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA
                                                                                                                                                                                                                                                                                                                                                                                    /SIDS1/gcgdata/geneseq/geneseqn/NA2000.DAT:AAA43182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Quality:
Ratio:
                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       94IL-0111125.
94IL-0109632.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95WO-US05854.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          65.00
1.000
                                                                                                                                                                                                                                                                                        cDNA; 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Varfolomeev E, Wallach
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   to: 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         35
```

alignment\_block:

Percent Similarity:

Align seg 1/1 to: AAA43182 US-09-484-964-2 x AAA43182

from: 1

to:

alignment\_scores:

Quality:

Ratio:

: 32.00 : 1.000 : 100.000

Gaps: 0
Percent Identity: 100.000

Sequence 335

BP; 117

A; 61 C;

86 <u>و</u>;

71 T; 0 other;

```
are useful in assays for determining biological activity and raising antibodies. They may be useful for treatment of autoimmune disorders (multiple sclerosis, insulin dependent diabetes), allergic conditions (asthma), myeloid or lymphoid cell deficiencies, wounds, burns, ulcers, osteoporosis, osteoarthritis, central nervous system disorders (Alzheimer's, Parkinson's, Huntington's disease, stroke), coagulation disorders (haemophilia, thrombosis), inflammatory disorders (Crohn's disease), tumours, bacterial, fungal or viral infections, depression an psoriasis. AAA43420 to AAA43425 represent linker variants which are giv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      expressed sequence tag; EST; probe; chemotactic; proliferative; immunomodulatory; haematopoletic; chemokinetic; analgesic; haemostatic, thrombolytic; antiinflammatory; cytostatic; antibacterial; antifungal; antiviral; antiinflammatory; cytostatic; vulnerary; antiparkinsonian; antiviral; antidabetic; neuroprotective; noutropic; antiparkinsonian; cerebroprotective; anticonvulsant; antidepressant; gene therapy; vaccine; autoimmune disorder; multiple sclerosis; allergic condition; insulin dependent diabetes; asthma; myeloid cell deficiency; ulcer; lymphoid cell deficiency; burn; osteoporosis; osteoparthritis; central nervous system disorder; Alzheimer's disease; stroke; central nervous system disorder; Alzheimer's disease; stroke;
                                                                                                                                                                                                                                                                                                                                                                               the tissues they were isolated from. The activities include: chemotactic; proliferative; immunomodulatory; haematopoietic; chemokinetic; analgesic; haemostatic; thrombolytic; antiinflammatory; cytostatic; antibacterial; antifungal; antiviral; antidabetic; antiasthmatic; vulnerary; antiulcer; osteopathic; neuroprotective; nootropic; antiparkinsonian; antipsoriatic; cerebroprotective;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Isolated polynucleotides, and encoded proteins, comprising secreted expressed sequence tags (sESTs), useful for treating various disorde such as autoimmune, infectious, and central nervous system disorders
                                                                                                                                                                                                                                                                                   anticonvulsant; and antidepressant. The SESTs can be used for gene therapy and in vaccines. The SESTs are useful as probes for the identification and isolation of full-length cDNAs and genomic DNAs molecules which correspond to the SESTs. Proteins encoded by the SESTs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Jacobs K,
Merberg D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence tags (SESTs), isolated from human, mouse, xenopus and rat tissue sources. The SESTs can have a range of activities depending on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAA41261 to AAA43419 represent specifically claimed secreted expressed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 1; Page 559; 618pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2000-317937/27.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GEMY ) GENETICS INST INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15-OCT-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20-APR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO200021990-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Xenopus sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Parkinson's disease; Huntington's disease; coagulation disorder;
                                           in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              haemophilia; thrombosis; inflammatory disorder; Crohn's
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  infection; depression; psoriasis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             McCoy JM,
Treacy M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98US-0104435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99WO-US24205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LaVallie ER, Collins-Racie LA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         analgesic; haemostatic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Evans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

OM of: US-09-484-964-2 to: Issued\_Patents\_NA:\*

out\_format : pfs

```
; FEATURE:
; NAME/KEY: CDS
; LOCATION: (136)..(441)
US-09-213-768-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WARN: XGAPOP and YGAPOP must be equal. Assuming YGAPOP=XGAPOP=60.000 WARN: XGAPEXT and YGAPEXT must be equal. Assuming YGAPEXT=XGAPEXT=60.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Database: Issued_Patents_NA:*
Database sequences: 324599
Database length: 94655562
Database length: 94655562
                                                                                                                                                                                                                                                                                                                           alignment_scores:
Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query: US-09-484-964-2
Query length: 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Date: Aug 15, 2001 6:40 PM
                                                                                                                                                                                                                alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seq_name: /cgn2_6/ptodata/2/ina/5B_COMB.seq:US-09-213-768-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence Strd Orig ZScore EScore Len
/cgn2_6/ptodata/2/ina/5B_COMB.seq:US-09-213-768-1 +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         score_list:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Search time (sec): 79.730000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Search information block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Command line parameters:
                                                                                                                                                                                                                                                                  Quality: 83.00
Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -MODEL=frame+_p2n.model -DEV=xlp
-Q=/cgn2_1/USPTO_spool/US99484964/runat_14082001_111933_27708/app_query.fasta_1.158
-DB=Issued_Patents_Na .QPMF=fastap -SUFFIX=01i rni -GAPOD=4.500
-GAPEXT=0.050 -MINMATCH=0.100 -LOOPCL=0.000 -LOOPEXT=0.000
-QGAPEXT=0.050 -VGAPEXT=0.050 -XGAPOP=60.000 -XGAPEXT=60.000
-FGAPEXT=7.000 -YGAPEXT=7.000 -YGAPOP=60.000 -YGAPEXT=60.000
-DELOD=6.000 -DELEXT=7.000 -YGAPOP=60.000 -YGAPEXT=60.000
-DELOD=6.000 -DELEXT=7.000 -YGAPOP=60.000 -YGAPEXT=60.000
-TRANS=human40.cdi -LIST=45 -DOCALICN=200 -THR_SCORE=quality
-THR_MIN=20 -ALIGN=15 -MODE-LOCAL -OUTFMT=pfs -NORM=ext -MINLEN=0
-MAXLEN=20000000000 -USER=US09484964 @CGNI_1_56 -NCPU=6 -ICPU=3
-LONGLOG -NO_XLPXY -WAIT -THREADS=1
                                                                                                                                                                             US-09-484-964-2 x US-09-213-768-1
                                                                                                                 Align seg 1/1 to:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/09/213,768
CURRENT FILING DATE: 1998-12-17
NUMBER OF SEQ ID NOS: 47
SEQ ID NO 1
LENGTH: 1514
TYPE: DNA
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Application US/09213768 Patent No. 5985664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Brenda F. Baker APPLICANT: Lex M. Cowsert TITLE OF INVENTION; ANTISENSE MODULATION OF SENTRIN EXPRESSION FILE REFERENCE: RTS-0026
190 GGTGAATATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA 239
                               19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Results were produced by the GenCore software, Copyright (c) 1993-2000 Compugen Ltd.
                                                                                                                    US-09-213-768-1
                                                                                                                                                                                                                                                            Length: 83
Gaps: 0
Percent Identity: 100.000
                                                                                                                 from: 1
                                                                                                                    to:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ! Documentation
83.00 1549.08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.1e-78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1514
```

```
gb_est73:BE331886
gb_est77:BE629396
gb_est75:BE482995
gb_est71:BE197453
                                                                           gb_est45:AW323392
gb_est17:AI248769
gb_est44:AW239296
                                                                                                                                                                                                                                                                                                                                                                                                                                                             gb_est23:A1646104
gb_est86:BF323866
gb_est10:AA636685
gb_est75:BE482568
                                                                                                                                                    gb_est48:AW519530
gb_est1:AA030059
gb_est7:AA399812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gb_est95:BF978928
gb_est10:AA682161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OM of: US-09-484-964-2 to: EST:*
                                                                                                                                                                                                                                                                                                                                                                                                           gb_est7:AA401864
gb_est77:BE629376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gb_est11:AA726795
gb_est7:AA450748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Database sequences: 10228115
Database length: 431459454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Command line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Date: Aug 15,
                                                                                                                                                                                                                                                                                                                                gb_est2:AA105474
                                                                                                                                                                                                                                                                                                                                                            gb_est106:N31695
                                                                                                                                                                                                                                                                                                                                                                                 gb_gss1:AF046515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gb_est7:AA423388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gb_est110:W24066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gb_est15:AI047190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gb_est17:AI180896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gb_est88:BF512106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gb_est14:AA981271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gb_est17:AI180895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gb_est81:BE982210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        yb_est4 : AA227355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            jb_est4 : AA227354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gb_est8:AA473590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Search time (sec): 1164.220000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Search information block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     score_list:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -MODEL-frame+ p2n.model -DEV-xlp
-Q-/cgn2_1/USPT0_spool/US09484964/runat_14082001_111932_27678/app_query.fasta_1.158
-Q-/cgn2_1/USPT0_spool/US0948964/runat_14082001_111932_27678/app_query.fasta_1.158
-DB=EST -Q-MT-fastap -SUFFIX-oli.rst -GAPOP=4.500 -GAPEXT=0.050
-MINNATCH=0.100 -LOOPCL=0.000 -LOOPEXT=0.000 -FGAPOP=6.500
-QGAPEXT=0.100 -VGAPOP=60.000 -VGAPEXT=60.000 -FGAPOP=6.000
-FGAPEXT=7.000 -VGAPOP=60.000 -VGAPEXT=60.000 -DELEXT=7.000 -VGAPOP=6.000
-DELEXT=7.000 -VGAPOP=60.000 -YGAPEXT=60.000 -DELEXT=7.000 -STAFT=1 -MATRIX-oligo -TRANS-human40.cdi -LIST=45
-DOCALIGN=200 -THR_SCORE-quality -THR_MIN=20 -ALIGN=15
-MODE-LOCAL -OUTFMT=Pfs -NORM-ext -MINLEN-0 -MAXLEN-200000000
-USBR-US09484964_@CGN1_1_2867 -NCPU=6 -ICPU=3 -LONGLOG -NO_XLPXY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   XGAPOP and YGAPOP must be equal. Assuming YGAPOP=XGAPOP=60.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            XGAPEXT and YGAPEXT must be equal. Assuming YGAPEXT=XGAPEXT=60.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Results were produced by the GenCore software, version 4.5 Copyright (c) 1993-2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-484-964-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -THREADS-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2001 6:21 PM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    l Orig
83.00
                               \begin{smallmatrix} 8&8&8&8\\8&8&3&8\\\end{smallmatrix}
                                                                                                                                                                                                                                                                                                              . . .
                                                                                                                                                                                                                                                                                                                                                                                                                                        .00
       1689.78
1688.89
1688.89
1688.70
1688.36
1688.16
1688.16
1687.78
1687.68
1687.68
1687.63
1687.53
1687.35
1687.35
1687.35
1687.35
1687.35
1687.35
1687.35
1687.35
1687.35
1688.35
1687.35
1688.35
1687.35
1688.35
1688.35
1688.35
1688.35
1688.35
1688.35
1688.35
1688.35
1688.35
1688.35
1688.35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             out_format : pfs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6.3e-85
6.5e-85
6.5e-85
6.6e-85
6.6e-85
6.8e-85
6.9e-85
6.9e-85
7.0e-85
7.0e-85
                                                                                                                                                                                                                                                                                                                                                       7.1e-85
7.1e-85
7.1e-85
7.2e-85
7.2e-85
7.3e-85
7.3e-85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6.0e-85
6.1e-85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5.9e-85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5.3e-85
                                                                                                                                                                                                                                                       7.4e-85
7.4e-85
7.5e-85
7.5e-85
                            7.8e-85
7.8e-85
7.9e-85
7.9e-85
7.9e-85
                                                                                                                                                                                                     7.7e-85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EScore
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AA473590 vg63h04.rl Beddington
AA227354 zr22e11.rl Stratagene
AA227355 zr22e12.rl Stratagene
BE982210 UI-w-CGOp-bfi-d-02-0-U
AI180895 ub77a05.rl Soares_manu
AA981271 vx60f07.rl Stratagene
AA421208 zu05h05.rl Soares_test
AA726795 vu42g10.rl Barstead mc
AA421208 vf78d04.rl Soares_manu
BF512106 UI-H-BW1-ami-g-09-0-UI
AI180896 ub77a06.rl Soares_manu
AA896203 vx62d07.rl Stratagene
AI047190 uh62d04.rl Soares_embr
                  BE629396 uu37d12.y1 Soares_mannt BE482995 168990 BARC 5BOV Bos t BE197453 ug74f06.y1 Soares_mannt AW519530 up33h12.y1 Soares_mous AA030059 mi22h03.r1 Soares mous AA398812 vd71f12.r1 Beddington AW323392 uo58905.y1 NCI_CGAP_LU AW323392 uo58907.y1 NCI_CGAP_LU AW239296 xb38611.y1 NCI_CGAP_MAW323949 ug14c01.y1 Soares_mannt AW989449 ug14c01.y1 Soares_mannt AW989449 ug15b06.y1 NCI_CGAP_MAW32392 hav25b06.y1 NCI_CGAP_MAW323928 ka2307.y1 NCI_CGAP_MAW3230928 ka2307.y1 NCI_C
                                                                                                                                                                                                                                                                                                                                                     AA423388 ve39b12.rl Soares_mann
AI646104 ub77a05.xl Soares_mann
BF323866 SnEST4a20f08.yl cSn 1
AA636685 vr15f02.rl Barstead mc
BE482568 168404 BARC 5BOV Bos t
AA401864 zv65b12.rl Soares_tota
BE629376 uu37c02.yl Soares_mann
AF046515 AF046515 Mus musculus
N31695 yx69901.rl Soares melanc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Documentation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BF978928 602147602F1 NIH_MGC_62
AA682161 vull3e09.r1 Barstead mc
W24066 zb82a02.r1 Soares_senesc
                                                                                                                                                                                                                                                                                                   AA105474 mm92d10.rl Stratagene
BE331886 ut05c09.yl Soares_thym
Soares_mamm
NCI_CGAP_Ma
Mouse E10 5
                               Align seg 1/1
```

```
gb_est47:AW465185
gb_est7:AW399819
gb_est80:BE861560
gb_est85:BF244251
gb_est40:AV667206
gb_est73:BE374647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
alignment_block:
US-09-484-964-2 x AA473590
                                                                                                                   alignment_scores:
                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq_name: gb_est8:AA473590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                         Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AA473590 321 bp mRNA EST 18-JUN-1997 vg63h04.rl Beddington mouse embryonic region Mus musculus CDNA clone IMAGE:866071 5' similar to TR:G927779 G927779 SUPPRESSOR OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                 Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Marra, M., Hillier, L., Allen, M., Bowles, M., Dietrich, N., Dubuque, T., Geisel, S., Kucaba, T., Lacy, M., Le, M., Martin, J., Morris, M., Schellenberg, K., Steptoe, M., Tan, F., Underwood, K., Moore, B., Theising, B., Wylie, T., Lennon, G., Soares, B., Wilson, R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Seq primer: -28ml3 rev1 ET from Amersham High quality sequence stop: 304.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MGI:510159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Email: mouseest@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Waterston, R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AA473590.1 GI:2201817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AA473590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MIF2 MUTATIONS. ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             house mouse
                                                                                Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases
                                                                                                                                                                                                  118
                                                                                                                                                                                                  Q
                                                       83.00
1.000
100.000
                                                                                                                                                                                           /note-"Organ: whole embryo; Vector: pCMV-SPORT; Site_1: Sall; Site_2: Not1; Cloned unidirectionally. Primer: Oligo dT. Gastrulating embryos were collected at 7.5dpc from C57BL6 x DBA matings, excluding embryos that had developed head folds and all extraembryonic tissues. Average insert size: 1.3 kb (range: 0.5 - 3.0 kb). Referenced in Development 121, 2479-2489 (1995)" a 51 c 75 g 77 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       +++++
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eutheria;
                                                                                                                                                                                                                                                                                                                                                          /tissue_type="embryo"
/dev_stage="7.5dpc"
/lab_host="DH12S"
                                                                                                                                                                                                                                                                                                                                                                                                                    /clone_lib="Beddington mouse embryonic region"
/sex="pooled"
                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:10090"
/clone="IMAGE:866071"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /strain="C57BL6 x DBA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 to 321)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     83.00
83.00
83.00
83.00
83.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1686.46
1686.32
1686.11
1686.06
1685.86
                                               Length: 83
Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chordata; Craniata; Vertebrata; Euteleostomi; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8.1e-85
8.2e-85
8.5e-85
8.5e-85
8.7e-85
8.8e-85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AW465185
AA399819
BE861560
BF244251
AV667206
BE374647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0 UI-M-AH1-ago-e-04-0
1 601863007F1 NIH_MGC
6 AV667206 Bos taurus
7 601224145F1 NCI_CGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BP230018A10G10 Soar
vd71h12.rl Beddingt
```

to: AA473590

from:

to:

321

```
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             seq_name: gb_est4:AA227354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    206 CAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGAGGAAGA 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        uAspVallleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTTGAAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCACTCGACGGTT 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGATACA 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             zr22e11.r1 Stratagene NT2 neuronal precursor 937230 Homo sapiens
cDNA clone IMAGE:664172 5' similar to TR:G927779 G927779 SUPPRESSOR
OF MITATIONS. ; mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information. Seg primer: ~28ml3 revi ET from Amersham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Washington University School of Medicine 4444 Forest Park Parkway, Box 8501, St. 1 Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chissoe, S., Dietrich, N., DuBuque, T., Favello, A., Gish, W., Hawkins (M.), Hultman, M., Kucaba, T., Lacy, M., Le, M., Mardis, E., Moore (M.), Hultman, M., Kucaba, T., Lacy, M., Le, M., Le, M., Mardis, E., Moore (M.), Holtman, M., Kucaba, T., Lacy, M., Le, M., Mardis, E., Moore (M.), Farsons, J., Prange, C., Rifkin, L., Rohlfing, T., B., Morris, M., Parsons, J., Prange, C., Rifkin, L., Rohlfing, T., Schellenberg, K., Soares, M.B., Tan, F., Thierry Meg, J., Trevaskis, E., Underwood, K., Wohldmann, P., Waterston, R., Wilson, R. and Marra, M. Generation and analysis of 280,000 human expressed sequence tags
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: Wilson RK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97044478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AA227354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Email: est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA227354.1 GI:1848909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 361)
      121 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               quality sequence stop: 282.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Res. 6 (9), 807-828 (1996)
                /Clone_lib="Stratagene NT2 neuronal precursor 937230"
/tissue_type="neuroepithelial cells"
/dev_stage="Ntera-2 neuroepithelial cells"
/lab_host="SOLR (kanamycin resistant)"
/note="Organ: brain; Vector: pBluescript SK-; Site_1:
ECORI; Site_2: XhoI; Cloned unidirectionally. Primer:
Oligo dT. Uninduced, exponentially growing neuroepithelial
cells (Ntera-2/c1.D1). Average insert size: 1.0 kb;
Uni-ZAP XR Vector; -5' adaptor sequence: 5' GAATTCGGCACGAG
3' -3' adaptor sequence: 5' CTCGAGTTTTTTTTTTTTTTTT 3'"
                                                                                                                                                                                                                                                                                                                                                                         /organism="Homo sapiens"
/db_xref="GDB:5426089"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                               /clone="IMAGE:664172"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cocation/Qualifiers
-3' adaptor sequence: 68 c 92 g 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   St. Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24-FEB-1997
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             seq_name: gb_est4:AA227355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Align seg 1/1 to: AA227354 from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-484-964-2 x AA227354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            158 CTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             258 CAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           208 GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT 257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  69 GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACAGTT 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA227355 368 bp mRNA EST 11-MAR-1998 zr22e12.rl Stratagene NT2 neuronal precursor 937230 Homo sapiens CDNA clone IMAGE:664174 5' similar to TR:G927779 G927779 SUPPRESSOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Quality:
Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (Dases 1 to 368)

Hillier,L., Allen,M., Bowles,L., Dubuque,T., Geisel,G., Jost,S., Krizman,D., Kucaba,T., Lacy,M., Le,N., Lennon,G., Marra,M., Martin,J., Moore,B., Schellenberg,K., Steptoe,M., Tan,F., Theising,B., White,Y., Wylie,T., Waterston,R. and Wilson,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            White, Y., Wylie, T., Watersto
WashU-NCI human EST Project
Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                  This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information. Insert Length: 1260 Std Error: 0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tel: 314 286 1800 Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
                                                                                                                                                                                                                                                                                        High quality sequence stop: 360.
                                                                                                                                                                                                                                                                                                                   Seq primer: -28m13 rev1 ET from Amersham
                                                                                                                                                                                                                                                                                                                                            Insert Length: 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                          Email: est@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Wilson RK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AA227355.1 GI:1848910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OF MIF2 MUTATIONS. ;, mRNA sequence.
                     /clone="IMAGE:664174"
/clone_lib="Stratagene NT2 neuronal precursor
/tissue_type="neuroepithelial cells"
/dev_stage="Ntera-2 neuroepithelial cells"
                                                                                                                                               /db_xref="taxon:9606"
                                                                                                                                                                       /organism="Homo sapiens"
/db_xref="GDB:5426092"
                                                                                                                                                                                                                                                         Location/Qualifiers
/lab_host="SOLR (kanamycin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    83.00
                                                                                                                                                                                                                                       . 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Identity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              to: 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.000
```

```
seq_documentation_block:
LOCUS BE982210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seq_name: gb_est81:BE982210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Quality: 83.00
Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Align seg 1/1 to: AA227355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-484-964-2 x AA227355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              157 CTTCAAAGTGAAAATGACAACACACTCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           107 GGTGAATATTATATACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         257 CAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGA 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    207 GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   69 GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     35 sPheLysValLysMetThrHisLeuLysLysLeuLysGluSerTyrC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACAGTT 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Quality:
                    The sequence contained an oligo-dT track that was present in the oligonucleotide that was used to prime the synthesis of first strand cDNA and therefore this may represent a bonafide poly A tail. The sequence tag present in the cDNA between the NotI site and the oligo-dT track served to identify it as a clone from the retina tissue cDNA Library Preparation: M.B. Soares Lab Clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus 1 (bases 1 to 373)
Bonaldo, M.F., Lennon, G. and Soares, M.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 UI-M-CGOp-bfi-d-02-0-UI.s1 NIH_BMAP_Ret4_S2 Mus musculus cDNA clone UI-M-CGOp-bfi-d-02-0-UI 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                               Contact: Chin, H
National Institute of Mental Health
                                                                                                                                                                                                                                                                                                                                                                                           97044477
                                                                                                                                                                                                                                                                                                                                                                                                                                               discovery
distribution: Researchers may obtain BMAP cDNA clones from RESEARCH
                                                                                                                                                                                                                                                                                                     6001 Executive Blvd. Room 7N-7190, MSC 9643, Bethesda,
                                                                                                                                                                                                                                                                                                                                                                                                                  Genome Res. 6 (9), 791-806 (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Normalization and subtraction: two approaches to facilitate gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BE982210.1 GI:10652134
                                                                                                                                                                                             Email: mEST@mail.nih.gov
                                                                                                                                                                                                                                                                           20892-9643, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             122
                                                                                                                                                                                                                       301 443 1706
301 443 9890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Organ: brain; Vector: pBluescript SK-; Site_1: EcoRI; Site_2: XhoI; cloned unidirectionally. Primer: Oligo dT. Uninduced, exponentially growing neuroepithelial cells (Ntera-2/c1.D1). Average insert size: 1.0 kb; Uni-ZAP XR Vector; -5' adaptor sequence: 5' GAATTCGGCACGAG 3' -3' adaptor sequence: 5' CTCGAGTTTTTTTTTTTTTTTT 3'"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           69 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        373 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        91 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           to: 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             86 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           05-OCT-2000
                                                                                                                                                                                                                                                                                                           ₹
```

```
seq_name:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                         seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           alignment_scores:
                         SOURCE
                                                 KEYWORDS
                                                                             VERSION
                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Quality: 83.00
Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Align seg 1/1 to reverse of: BE982210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-484-964-2 x BE982210/rev
  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             316
                                                                                                                                                                                                                                                                                                                                                                                                                        266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            366 GGGGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGATACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                     uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                                                           AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCACTCGACGGTT 118
                                                                                                                                                                                                                                                                       gb_est17:AI180895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENETICS. It should be noted that Bento Soares is generating a small number of additional specialized non-redundant arrays of BMAP cDNAs whose availability will be considered under appropriate and limited collaborative arrangements The following repetitive elements were found in this cDNA sequence: 1-33,
                                                                                                                    ub77a05.r1 Soares_mammary_gland_NMLMG Mus musculus cDNA clone IMAGE:1383728 5' similar to SW:SM33_HUMAN Q93068 UBIQUITIN-LIKE PROTEIN SMT3C ;, mRNA sequence.
Mus musculus
                                                 EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Seq primer: M13 Forward
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             >AT_rich#Low_complexity
                                                                          AI180895.1 GI:3731533
                                                                                                                                                                                                    AI180895
                       house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             various stages of development. For a detailed description of the library from which this clone was derived, please visit our web site at brainest.eng.uiowa.edu.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TAG_LIB=NIH_BMAP_Ret4_S2
TAG_TISSUE=adult-retina
TAG_SEQ=GTCAGCGCGCAC"
10 c 51 g 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ultimately derived from mouse retina tissue libraries at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone_lib="NIH_BMAP_Ret4_S2"
/lab_host="DH10B (Life Technologies)"
/note="Vector: pT7T3D-Pac (Pharmacia) with a modified polyllnker; Site_1: Not I; Site_2: Eco RI; The NIH_BMAP_Ret4_S2 library is a subtracted library.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone="UI-M-CGOp-bfi-d-02-0-UI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /strain="C57BL/6J"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                            388 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Identity: 100.000
                                                                                                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                137 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             267
                                                                                                                                                                                                    08-OCT-1998
```

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PEFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Quality: 83.00
Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Align seg 1/1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-484-964-2 x AI180895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                             340
                                                                                                                               290 CAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGAGGAAGA 339
                                                                                                                                                                                                                                    240 GTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGAAGGT
                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                             140 GGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGATACA
                                                   85 uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                        69 GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                          52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19 GlyGluTyrIleLysLeuLysVallIleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                          35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                           AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCACTCGACGGTT 388
                                                                                                                                                                                                                                                                                  ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Marra M/Mouse EST Project WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Possible reversed clone: similarity on wrong strand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MGI:906196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 388)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  to: AI180895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    primer: -28m13 rev2 ET from Amersham
h quality sequence stop: 185.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             modified pT7T3 vector. Library is normalized. Librar was constructed by Bento Soares and M. Fatima Bonaldo. 72 c 103 g 82 t 2 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Onote-"Vector: pT7T3D-Pac (Pharmacia) with a modified polylinker; 1st strand cDNA was prepared from mammary gland tissue from a lactating female, and was then primed with a Not I - oligo(dT) primer. Double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector. Library is normalized. Library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone_lib="Soares_mammary_gland_NMLMG"
/sex="female (lactating)"
/tissue_type="mammary gland"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="taxon:10090"
/clone="IMAGE:1383728"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     from: 1 to: 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length:
                                                                                                                                                                                                                                    289
                                                                                                                                                                                                                                                                                                                                           239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cDNA was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            alignment_scores:
    Quality:
                                                                                                                                                                                                                                                                                                                                                                                          alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seq_name: gb_est14:AA981271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             seq_documentation_block:
                                                                                                                                                                                                                                                                                                              Align seg 1/1 to:
                                                                                                                                                                                                                                                                                                                                                              US-09-484-964-2 x AA981271
                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
214 GTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGAAGGT
                                                                                                    164 TTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT 213
                                                                                                                                                                                                         source
                                                52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                               35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                                                                                                                                                                                          19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 391)
Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             vx60f07.r1 Stratagene mouse macrophage (#937306) Mus musculus cDNA clone IMAGE:1279621 5' similar to SW:SM33.HUMAN Q93068 UBIQUITIN-LIKE PROTEIN SWT3C ;, mRNA sequence.
AA981271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Marra M/Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Seq primer: -28m13 rev1 ET from Amersham
High quality sequence stop: 379.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This clone is available royalty-free through LLNL ; contact the IMAGE Consortium (info@image.llnl.gov) for further information. MGI:671421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: mouseest@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unpublished (1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA981271.1 GI:3159807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Waterston,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              128
                                                                                                                                                                                                                                                                                                              AA981271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone_lib="Stratagene mouse macrophage (#937306)"
/tissue_type="macrophage"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone="IMAGE:1279621"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83.00
                                                                                                                                                                                                                                                                                                              from: 1 to: 391
                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Identity: 100.000
```

```
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
ORGANISM
alignment_block:
US-09-484-964-2 x AA421208
                                                                                                                                                                                                                                                              alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seq_name:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                 Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCACTCGACGGTT 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gb_est7:AA421208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hillier,L., Allen,M., Bowles,L., Dubuque,T., Geisel,G., Jost,S., Kucaba,T., Lacy,M., Le,N., Lennon,G., Marra,M., Martin,J., Moore,B., Schellenberg,K., Steptoe,M., Tan,F., Theising,B., White,Y., Wylie,T., Waterston,R. and Wilson,R.
WashU-Merck EST Project 1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               викатуота; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 402)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AA421208 402 bp mRNA EST 16-OCT-1997 zu05h05.rl Soares_testis_NHT Homo sapiens cDNA clone IMAGE:7310015...similar to TR:G927779 G927779 SUPPRESSOR OF MIF2 MUTATIONS. ;,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: est@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
Seq primer: -28ml3 rev2 ET from Amersham
High quality sequence stop: 391.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unpublished (1997)
Contact: Wilson RK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Washington University School of Medicine 4444 Forest Park Parkway, Box 8501, St. 1
                                                                                                                                                                                                                      Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AA421208.1 GI:2100033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           human.
                                                                                                                                                                                  Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                       134
                                                                                                                                 1.000
100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   constructed
1 74 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POINT CAME COMMAND TO THE PROPERTY OF THE PROP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Homo sapiens"
/db_xref="GDB:5927801"
/db_xref="taxon:9606"
/clone="IMAGE:731001"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone_lib="Soares_testis_NHT"
                                                                                                                                                                                                                      83.00
                                                                                                                                     Percent Identity:
                                                                                                                                                                                                                                                                                                                                                                                                                              by Bento Soares and M. Fatima Bonaldo. 105\ g 89 t
                                                                                                                                                                                                                          Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               St. Louis, MO 63108
                                                                                                                                     100.000
```

Align seg 1/1

to: AA421208

from:

ţo:

402

```
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          seq_name: gb_est11:AA726795
                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              247 GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              197 CTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              147 GGTGAATATATAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA 196
                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              297 CAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             85 uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlnargIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyGluTyrI1eLysLeuLysValI1leGlyGlnAspSerSerGluI1eHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            vu42g10.r1 Barstead mouse myotubes MPIRB5 Mus musculus cDNA clo
IMAGE:1194114 5' similar to SW:SM33_HUMAN Q93068 UBIQUITIN-LIKE
PROTEIN SMT3C ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubw
Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                 High quality sequence stop: Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AA726795.1 GI:2744502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AA726795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Marra M/Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Waterston, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MGI:641210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nouse mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 402)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                primer: -28m13 rev2 ET from Amersham
h quality sequence stop: 385.
                    3']; double-stranded cDNA was ligated to Eco RI adaptors [AATTCGGATCCTTG], digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector. Library constructed by Bob Barstead. The C2C12 cell line (available from ATCC, catalog # CRL-1772) differentiates
                                                                                                                            /clone_lib="Barstead mouse myotubes MPLRB5"
/cell_line="C2C12"
                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:10090"
/clone="IMAGE:1194114"
rapidly, forming contractile
                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       402 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chordata; Craniata; Vertebrata; Euteleostomi; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA
       myotubes and producing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         02-JAN-1998
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq_name: gb_est7:AA450748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Quality: 83.00
Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Align seg 1/1 to: AA726795 from: 1 to:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-484-964-2 x AA726795
                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       289 CAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGAGGAAGA 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    189 TTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           139 GGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGATACA 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           uAspVallleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCACTCGACGGTT 387
                                                                                                                                                                      Email: mouseest@watson.wustl.edu
This clone is available royalty free through LLNL ; contact the
                                                                                                                                                                                                                                                               WashU-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Lc
                                                                                                                                                                                                                                                                                                                                                                                                                          Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T. Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                      High quality sequence stop:
                                                                                                         Seq primer: -28m13 rev2 ET from Amersham
                                                                                                                                                                                                                                                                                                                                     Contact: Marra M/Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          vf78d04.rl Soares_mammary_gland_NbMMG Mus musculus cDNA clone IMAGE:849895 5' similar to TR:G927779 G927779 SUPPRESSOR OF MJ
                                                                                                                                                                                                                                                                                                                                                                 Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                    The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                      IMAGE Consortium (info@image.llnl.gov) for
                                                                                                                                                                                                                                                                                                                                                                                                                Waterston, R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AA450748.1 GI:2164418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MUTATIONS. ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   nouse mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 407)
                                                                                                                                                                                                                            314 286 1800
314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  136 a
                                                 1. .407
/strain="C57BL/6J"
                     /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             characteristic muscle proteins.
a 72 c 104 g 90 t
                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       407 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps:
                                                                                                                                                                                                                                                                    St. Louis,
                                                                                                                                                          further information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUPPRESSOR OF MIF2
                                                                                                                                                                                                                                                                      MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-JUN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mus.
```

```
COMMENT
                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                   seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                             seq_name: gb_est88:BF512106
                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alignment_block:
                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Align sey 1/1 to: AA450748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-484-964-2 x AA450748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity: 100.000
                                                                   JOURNAL
                                                                                                        TITLE
                                                                                                                             AUTHORS
                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                     337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           187 TTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              237 GTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGAAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                               69 GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGAGGAAGA
                                                                                                                                                                                                                                                                                                       BF512106 411 bp mRNA EST 07-DEC-2000 UI-H-BW1-ami-g-09-0-UI.sl NCI_CGAP_Sub7 Homo sapiens cDNA clone IMAGE:3070264 3', mRNA sequence.
      Email: cgapbs-r@mail.nih.gov
The sequence contained an ol
                                       Contact: Robert Strausberg, Ph.D.
                                                              Tumor Gene Index
Unpublished (1997)
                                                                                                  1 (bases 1 to 411)
NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap
National Cancer Institute, Cancer Genome Ana
                                                                                                                                                                 Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                  EST
                                                                                                                                                                                                                                                                     BF512106.1 GI:11597318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bonaldo."
a 72 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     adaptors (Pharmacia), digested with Not I and cloned in
the Not I and Eco RI sites of the modified pT773 vector.
RNA provided by Dr. Minoru Ko, Wayne State Univ. Librar:
constructed and normalized by Bento Soares and M.Fatima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Organ: mammary gland; Vector: pT7T3D-Pac (Pharmacia ) with a modified polylinker; Site_1: Not I; Site_2: Eco RI; 1st strand cDNA was primed with a Not I - oligo(dT) primer [5'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            83.00
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /tissue_type="mammary gland"
/dev_stage="4 weeks"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="taxon:10090"
/clone="IMAGE:849895"
/clone_lib="Soares_mammary_gland_NbMMG"
/sex="male"
    contained an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         from: 1
                                                                                                                                                          Chordata; Craniata; Vertebrata; Frimates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               104 g
    oligo-dT track that was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6
                                                                                                                                                                                    Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Wayne State Univ. Library
                                                                                                      Anatomy Project (CGAP)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the modified pT7T3 vector.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52
present
                                                                                                                                                                 Homo
```

in

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                   alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Quality: 83.00
Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                            Align seg 1/1 to reverse of: BF512106 from: 1 to: 411
                                                                                                                                                                                                                                                                                                                                                                           US-09-484-964-2 x BF512106/rev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                       403 GGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA
35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                                                                                                                                       19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    oligonucleotide that was used to prime the synthesis of first strand cDNA and therefore this may represent a bonafide poly A tail. cDNA Library Preparation: M.B. Soares Lab Clone distribution: NCI-CGAP clone distribution information can be found through the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Seq primer: M13 Forward
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    www-bio.llnl.gov/bbrp/image/image.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        I.M.A.G.E. Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             126 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone=lib="MCLI CGAP_Sub7"
/clone=lib="NCLI CGAP_Sub7"
/lab_host="PH10B (Life Technologies)"
/note="Vector: pf773D-Pac (Pharmacia) with a modified
/note="Vector: pf773D-Pac (Pharmacia) with a driver
comprising: the Index of pf773D-Pac (Pharmacia) with a driver
comprising: the IMAGE pool (NCI_CGAP_Kid3 pool 1 LLAM
334-3337, 362-3681, 1456008-145675,1500552-1502855);
/NCI_CGAP_Kid5 pool 1 LLAM 338-3342,3722-3725, 3776-3778
/NCI_CGAP_Kid5 pool 1 LLAM 3338-3342,3722-3725, 3776-3778
/NCI_CGAP_Kid5 pool 1 LLAM 3338-3342,3722-3725, 3776-3720,
/NCI_CGAP_GC4 pool 1 LLAM 338-3342,3722-3720,
/NCI_CGAP_GC4 pool 1 LLAM 3164-3167, 3716-3720,
/NCI_CGAP_GC4 poo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TAG_SEQ=GCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="taxon:9606"
/clone="IMAGE:3070264"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TAG_TISSUE-lung
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Research 6, 791-806.
TAG_LIB=NCI_CGAP-Lul3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148 t
                                                                                                                                354
```

```
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seq_name:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                      alignment_scores:
                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             303 GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            203 AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACAGTT 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                85 uAspvalIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gb_est17:AI180896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Musinae; Musi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ub77a06.rl Soares_mammary_gland_NMLMG Mus musculus cDNA clone IMAGE:1383730 5' similar to SW:SM33_HUMAN Q93068 UBIQUITIN-LIKE PROTEIN SWT3C ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Washington University School of MedicineP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AI180896.1 GI:3731534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Marra M/Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Waterston, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                house mouse.
                                                                                           Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         High quality sequence stop:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MGI:906198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Email: mouseest@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IMAGE Consortium (info@image.llnl.gov) for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              primer: -28m13 rev2 ET from Amersham
h quality sequence stop: 377.
                                                                                                                                                                                                                                                                                                                   /note="vector: pT7T3D-Pac (Pharmacia) with a modified /note="vector: pT7T3D-Pac (Pharmacia) with a modified polylinker; 1st strand cDNA was prepared from mammary gland tissue from a lactating female, and from dws then primed with a Not I - oligo(dT) primer. Double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of the modified pT7T3 vector. Library is normalized. Library was constructed by Bento Soares and M. Fatima Bonaldo. "a 73 c 106 g 102 t 2 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone_lib="Soares_mammary_gland_NMLMG"
/sex="female (lactating)"
/tissue_type="mammary gland"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:10090"
/clone="IMAGE:1383730"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                               1.000
                                                                                               83.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mRNA
83
0
100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             08-OCT-1998
```

alignment\_block:

Percent Similarity: 100.000

Percent Identity:

US-09-484-964-2 x AI180896

ORIGIN

```
BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            seq_name:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Align seg 1/1 to: AI180896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            193 TTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              69 GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19 GlyGluTyrIleLysLeuLysVallleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCACTCGACGGTT 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGAAGGT 292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gb_est13:AA896203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        vx62d07.r1 Stratagene mouse macrophage (#37306) Mus musculus cDNA clone IMAGE:1279789 5' similar to SW:SM33_HUMAN Q93068 UBIQUITIN-LIKE PROTEIN SWT3C ;, mRNA sequence.
AA896203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Marra M/Mouse EST Project
WashU-HHMI Mouse EST Project
WashIngton University School of Medicinep
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                     MGI:671589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished (1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Theising, B., Wylie, T., Lennon, G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA896203.1 GI:3032596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nouse mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 426)
                                                                                                                                                                                                                                                                                                                                                                                        primer: -28m13 rev1 ET from Amersham h quality sequence stop: 407.
     139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           314 286 1800
314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mouseest@watson.wustl.edu
             /tissue_type="macrophage"
/dev_stage="WBHI-3 cell line"
/lab_host="SOLR (kanamycin resistant)"
/note="Organ: blood; Vector: pBluescript SK-; Site_1:
/note="Organ: blood; Vector: pBluescript SK-; Site_1:
ECORI; Site_2: XhOI; Cloned unidirectionally. Primer:
Oligo dT. wEHI-3 cell line. Average insert size: 1.5 kb;
Uni-ZAP XR Vector: -5 adaptor sequence: 5 GAATTCGGCACGAG
3' -3' adaptor sequence: 5 CTCGAGTTTTTTTTTTTTTTTTT 3'"
                                                                                                                                                                                                                             /clone_lib="Stratagene mouse macrophage (#937306)"
                                                                                                                                                                                                                                                              /clone="IMAGE:1279789"
                                                                                                                                                                                                                                                                                          /organism="Mus musculus"
/db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
80 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        from: 1 to:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        420
93 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Soares, B., Wilson, R. and
```

Ļ

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq_documentation_block:
LOCUS AI047190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         seq_name:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Align seg 1/1 to: AA896203 from: 1 to: 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-484-964-2 x AA896203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       370 AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCACTCGACGGTT 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          270 GTCAAAGACAGGGAGTTCCAATGAATTCACTCAGGTTTCTCTTTGAAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                220 TTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   170 GGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGATACA 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 85 uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          69 GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gb_est15:AI047190
                                                                                                                                                                                                                                                                                                         Contact: Marra M/Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              uh62d04.r1 Soares_embryonic_stem_cell_NMES Mus musculus cDNA clone
                                                                                                                                                                                                                              This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R: and
                                                                                                                                                                                                           MGI:961803
                                                                                                                                                                                                                                                                                 Email: mouseest@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The WashU-HHMI Mouse EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Waterston, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AI047190.1 GI:3295477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IMAGE:1749991 5' similar to SW:SM33_HUMAN Q93068 UBIQUITIN-LIKE PROTEIN SMT3C ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 429)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ratio:
                                                                                                                                                     primer: -28m13 rev2 ET from Amersham
h quality sequence stop: 407.
                        /db_xref="taxon:10090"
/clone="IMAGE:1749991"
                                                                                                                                Location/Qualifiers
/clone_lib="Soares_embryonic_stem_cell_NMES"
                                                                          organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           429 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chordata;
Rođentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              08-JUL-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Murinae; Mus.
```

ORIGIN

```
seq_documentation_block:
LOCUS BF978928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seq_name: gb_est95:BF978928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Quality: 83.00
Ratio: 1.000
Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Align seg 1/1 to: AI047190 from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-484-964-2 x AI047190
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         304 CAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGAGGAAGA 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154 GGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGATACA 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                85 uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19 GlyGluTyrIleLysLeuLysVallleGlyGlnAspSerSerGluIleHi 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCACTCGACGGTT 402
                                                                                                                                        Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: ATCC/DCTD/DTP
CDNA Library Preparation: CLONETECH Laboratories, Inc.
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
                                                                                                                                                                                                                                                                                                 1 (bases 1 to 430)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BF978928 430 bp mRNA EST 22-JAN-2001 602147602F1 NIH_MGC_62 Homo sapiens cDNA clone IMAGE:4306489 5',
                                  DNA Sequencing by: Incyte Genomics, Inc. Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BF978928.1 GI:12346143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="Organ: bone marrow; Vector: pT7T3D-Pac (Pharmacia) with a modified polylinker; Site_1: Not I; Site_2: Eco RI; 1st Strand cDNA was primed with a Not I - oligo(dT) primer [5'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        constructed by Bento Soares and M.Fatima Bonaldo. 76 c 109 g 104 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3']; double-stranded cDNA was ligated to Eco RI adaptors (Pharmacia), digested with Not I and cloned into the Not I and Eco RI sites of the modified p7773 vector. Library went through two rounds of normalization, and was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /cell_type="embryonic stem cell"
/lab_host="DH10B"
row: c column: 02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               253
```

254

69

COMMENT

REFERENCE

AUTHORS

TITLE JOURNAL

SOURCE KEYWORDS CCESSION

```
REFERENCE
                                                                                                                                                                                                     SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  seq_name: gb_est10:AA682161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    alignment_block:
US-09-484-964-2 x BF978928
                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                             seq_documentation_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                              VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Align seg 1/1 to: BF978928 from: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       321 CAGAGAATTGCTGATAATCATACTCCAAAAGAACTGGGAATGGAGGAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       221 CTTCAAAGTGAAAATGACAACACATCTCAAGAAACTCAAAGAATCATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 171 GGTGAATATTAAACTCAAAGTCATTGGACAGGATAGCAGTGAGATTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     85 uAspVallleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               35 sPheLysValLysMetThrThrHisLeuLysLysLeuLysGluSerTyrC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         52 ysGlnArgGlnGlyValProMetAsnSerLeuArgPheLeuPheGluGly 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19 GlyGluTyrTleLysLeuLysValIleGlyGlnAspSerSerGluIleHi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTCAAAGACAGGGTGTTCCAATGAATTCACTCAGGTTTCTCTTTGAGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCATTCAACAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                                                                                                                                                                                                                                                                                                              AA682161 431 bp mRNA EST 05-DEC-1997 vul3e09.rl Barstead mouse myotubes MPLRB5 Mus musculus cDNA clone IMAGE:1180552 5'. similar to TR:G927779 G927779 SUPPRESSOR OF MIF2
Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T., Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M., Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B., Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus 1 (bases 1 to 431)
                                                                                                                                                                                                     Mus musculus
                                                                                                                                                                                                                                                                                                                                       MUTATIONS. ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Quality:
                                                                                                                                                                                                                                                                                        AA682161.1 GI:2663193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             High quality sequence stop: 430
                                                                                                                                                                        Eukaryota;
                                                                                                                                                                                                                                      house mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="Organ: skin; Vector: pDNR-LIB'(Clontech); Site_1:
SfiI (ggccgcctcggcc); Site_2: SfiI (ggccattatggcc);
Double-stranded cDNA was prepared from cell line RNA. 5'
and 3' adaptors were used in cloning as follows: 5'
adaptor sequence: 5'-CACGGCCATTATGGCC-3' and 3' adaptor
sequence: 5'-ATTCTAGAGGCCGAGCGGCGAATG-dT(30)BN-3'
(where B = A, C, or G and N = A, C, G, or T). Average
insert size 1.75 kb (range 0.9-4.0 kb). 15/15 colonies
contained inserts by PCR. This library was enriched for
full-length clones and was constructed by Clontech
Laboratorles (Palo Alto, CA)."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      : 1.000
: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:4306489"
/clone_lib="NIH_MGC_62"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /tissue_type="melanotic melanoma, high MDR"
/lab_host="DH10B (T1 phage-resistant)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length: 83
Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .
0:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       270
```

```
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          alignment_block:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             alignment_scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Align seg 1/1 to: AA682161 from: 1 to: 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-484-964-2 x AA682161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
375 AGATGTGATTGAAGTTTATCAGGAACAAACGGGGGGTCACTCGACGGTT 423
                                                                                                                                                                         325 CAGAGAATTGCTGATAATCATACTCCGAAAGAACTGGGAATGGAGGAAGA 374
                                                                                                                                                                                                                                                                                                                                             175 GGAGAATACATTAAACTCAAAGTTATTGGACAGGATAGCAGTGAGATACA
                                                                                                                                                                                                                   69 GlnArgIleAlaAspAsnHisThrProLysGluLeuGlyMetGluGluGl 85
                                                                               85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19 GlyGluTyrIleLysLeuLysValIleGlyGlnAspSerSerGluIleHi 35
                                          uAspValIleGluValTyrGlnGluGlnThrGlyGlyHisSerThrVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Marra M/Mouse EST Project
Washbr-HHMI Mouse EST Project
Washington University School of MedicineP
4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
Tel: 314 286 1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Waterston,R.
The WashU-HHMI Mouse EST Project
Unpublished (1996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Quality:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: mouseest@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Seq primer: -28m13 rev2 ET from Amersham High quality sequence stop: 425.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MGI:638400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ratio:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    142 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 314 286 1800
314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /lab_host="DHIOB"
//lab_host="DHIOB"
//lab_host="DH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83.00
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /strain="03H"
/db_xref="taxon:10090"
/db_xref="taxon:10090"
/cione="IMAGE:1180552"
/clone_lib="Barstead mouse myotubes MPLRB5"
/cell_line="C2C12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps: 0
Percent Identity: 100.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         274
```